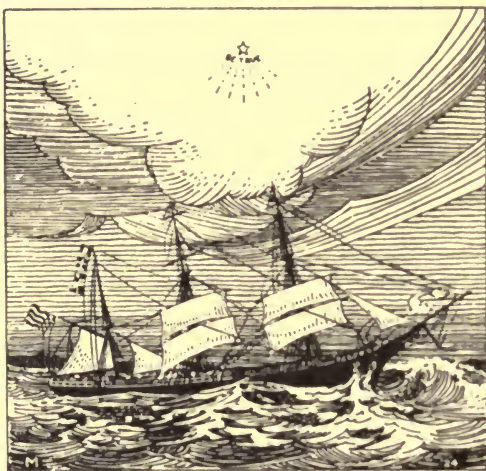


Housing Objectives and Programs

HOUSING PROBLEMS
TECHNOLOGICAL DEVELOPMENTS
LEGISLATION, STANDARDS, OBJECTIVES
EDUCATION, SERVICE, ORGANIZATION
HOUSING RESEARCH



JOHN IHLDER

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HOME BUILDING AND HOME
OWNERSHIP

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Housing Objectives and Programs

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Acknowledgment is made to Julian A. C. Chandler, Vice Chairman of the Committee on Education and Service, to the Secretaries of the several Committees whose reports are incorporated in this volume, namely, H. L. Whittemore, George N. Thompson, Katherine F. Liston, Harlean James, Julia D. Connor, James S. Taylor and Blanche Halbert, and to B. Eleanor Johnson, Research Assistant for the Committee on Research, for preliminary editing and frequent help in the preparation of these final reports for publication. Acknowledgment is likewise made to Theodora C. Bailey for the compiling of the Index and to Dan H. Wheeler for the detailed work of preparing this volume for the press.

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FOREWORD

The application of the microscope to present housing conditions and practices by the twenty-five fact-finding committees of the President's Conference made it possible for the six correlating committees to define what housing ought to be and to outline broadly the programs necessary to make it so. The definition of objectives alone justifies the Conference; for most of the defects of housing in this country are the result of the aimlessness of our present housing activity. Traditional dwellings of traditional types, inappropriate to a century of constant change, have been put up in response to subdividers' and builders' guesses as to transient demands. Even the efforts of the many public-spirited groups and individuals who have striven for homes of an improved type have been more or less vitiated by the lack of a sufficiently complete view of the goal to be striven for. Improved construction of individual houses without consideration of the lot and street layout, or of protection by zoning, has sometimes resulted only in giving longer life to a slum.

What has not been sufficiently understood is that good housing is the resultant of many forces interacting on one another in very complicated ways. The statement of standards and objectives in this volume leaves no doubt as to that point and once for all proves the impossibility of producing acceptable housing by isolated individual effort. In fact, it establishes housing as a major test of modern man's capacity to work cooperatively towards the distant goal of the common good instead of the immediate goal of the apparent individual good.

To realize the complex nature of modern housing, its dependence on all the economic, social, and political forces of the community, is to be impressed by how much we do not know about the interaction of the many forces involved and consequently how inefficient must be our efforts to improve homes. The plea for more facts echoes throughout the reports of the Conference committees. If factories and office buildings have reached high levels of efficiency, it is because thousands of men have devoted themselves to studying materials and their uses, the purposes and the organization of the plant required to fulfil them. The same analytic talent must be applied to housing if we are to have homes meeting the standards outlined in this volume.

But the discovery of facts must be followed by their application. The section on technological developments in this volume indicates that practice in house construction lags well behind knowledge, and that means are even now at hand to improve the quality and reduce the cost of building if builders will but make use of them. Public inertia and the retarding hand of tradition, however, combine to delay their adoption. The skyscraper represented a clean break with the past in office building. Probably a similar break with the past in small house construction will have to be made before suitable housing will be possible for every industrious American family.

How are we to bring about the application of facts and materials as they are discovered? Because housing is so intimately connected with health and public welfare it is inevitable that legislation should be invoked to compel the improvement of housing. We have only to review the history and effectiveness of zoning laws in many of our cities to see that legislation not based on an informed public opinion is largely futile. The solid foundation of all improvement—material or spiritual—is understanding. A people will have the housing that it demands and is willing to work for. It can neither be legislated into nor endowed with good housing. That, like every other good in the world, must be earned. All that leadership can do is to educate the public to know what good housing is and how to acquire it. In the sections on education and organization programs we come to the springboard from which housing reform must take off into the future. The Conference dug out and assembled a body of facts and principles sufficient to serve as a basis for a science of housing. The business of the future is to inject that science into the stream of common knowledge, to make the standards of housing defined by the Conference as much a part of our children's mental equipment as is the multiplication table.

ROBERT P. LAMONT.

August 8, 1932.

INTRODUCTION

When President Hoover in August, 1931, called together at the White House the committee which drew the plans for the President's Conference on Home Building and Home Ownership he said :

"After wide consultation with interested leaders, I have decided to undertake the organization of an adequate investigation and study on a nation-wide scale of the problems presented in home ownership and home building, with the view to the development of a better understanding of the questions involved and the hope of inspiring better organization and removal of influences which seriously limit the spread of home ownership, both town and country.

"I appreciate very much the high sense of public service which has brought you here today. I would not have asked you to come if I had not felt deeply that there was a real need. For some years the business community, our municipalities, and great numbers of associations devoted to the promotion of public welfare, have interested themselves in the problems of more adequate housing and home ownership. I will say at once that we have a larger proportion of adequate housing than any country in the world, but we still lag far behind our national ideals of homes for all our people. Substantial advances have been made in some parts of the country ; great experience has been gained and it has been the wish of many of these groups that there should be a thorough national inquiry with view to a summation of this experience, the mobilization of existing movements and the possible development from it of a new state of thought and action.

"Adequate housing goes to the very roots of the well-being of the family, and the family is the social unit of the nation. It is more than comfort that is involved, it has important aspects of health and morals and education and the provision of a fair chance for growing childhood. Nothing contributes more for greater happiness or for sounder social stability than the surroundings of their homes. It should be possible in our country for anybody of sound character and industrious habits to provide himself with adequate housing and preferably to buy his own home.

"I shall not enter upon the many phases of the subject. They are well known to many of you. My general thought has been

that we should first have a determination of the facts in every important direction, followed by a weighing and distillation of these facts and the formulation of collective judgment of the leaders of our country in this special knowledge. Not only the wide scope of the subject, but its many intricate problems involved will all require time for investigation and study. I have not presumed that you would undertake to direct such a task as this and bring it to conclusion without large assistance and cooperation. We wish to set up something more than an ephemeral discussion. It is obviously not our purpose to set up the Federal Government in the building of homes. There are many questions of local government involved. It is my hope that out of this inquiry and the conferences that will follow it, we should make so well-founded a contribution to our national understanding as to give direction and coordination to thought and action throughout the country."

The Planning Committee held two meetings and decided to have twenty-five committees appointed, each charged with the study of a special field within the general scope of the Conference. There were also six correlating committees which dealt with questions of aim and method common to the twenty-five fact-finding committees. The correlating committees whose reports are published in this volume were assigned the following subjects for study: Technological Developments; Legislation and Administration; Standards and Objectives; Education and Service; Organization Programs, Local and National; and Research.

The Chairman of each of the thirty-one committees was appointed by Secretary Lamont. Committee members were appointed upon the recommendation of the committee chairmen. The major function of each committee was to assemble and evaluate the work which had been and was being done in the United States in the field with which it was concerned. Available publications and information on the subject for the country as a whole were assembled and evaluated with a view to determining the present status of work within that field, the variations from community to community, the problems not yet solved, and the nature of researches under way. In addition, most of the committees made detailed recommendations for further necessary research and experimentation in their particular fields, stating practical values to be derived from such studies.

In view of the fact that each of the committees was made up of

representatives of agencies that had been working on these problems for years and of leading specialists in many fields, many of whom had devoted their lives to the problems in question, and that they had the advice and help of other leading specialists similarly qualified, their findings should represent the best thought and judgment available in the United States at this time upon these subjects.

Each committee was asked to complete its studies by early autumn, so that its findings and its recommendations for action or for further research might be printed and available for distribution prior to the calling of the President's Conference on Home Building and Home Ownership in December, 1931. The membership of the Conference consisted of more than five hundred members of the committees, as well as advisory members, and persons invited from each of the forty-eight states to represent national, state, metropolitan and rural organizations, public and private, philanthropic, educational, civic and commercial, which were concerned with one phase or another of the problem of housing and home improvement. More than 3,700 persons registered as members of the Conference.

One value of such a Conference lay in the fact that it was the first of its kind to pool all of the available information in this country relating to the subject of housing, to sift, analyze and evaluate contradictory evidence, and to stimulate and coordinate the activities of all civic, business, philanthropic, educational and governmental agencies at work in this field. More accurate information than had previously been available will make possible more effective programs for the solution of housing problems and more rapid elimination of conditions that are dangerous to the health, safety or well-being of American citizens. Public interest was aroused in the subject and much better backing can now be secured for housing programs than in the past.

* * * * *

In this volume are included the address by President Hoover at the opening session of the Conference, and the general summary of the work of the committees delivered by the Secretary of the Interior, Dr. Ray Lyman Wilbur, at its closing session. The resolutions adopted at that closing meeting are presented also, together with the reports of the six correlating committees.

The Conference Committee on Technological Developments dealt with recent inventions and improved technological processes. It examined the work of public and private research laboratories in this field and their findings. It has shown the trends of past invention in the field of housing, home building and home equipment, and a careful study of its report will reveal many profitable avenues of future research and experimentation which may lead to an appreciable reduction in the housing costs of the future.

The Committee on Legislation and Administration cooperated with other committees in analyzing the administration, operation, and effects of laws and ordinances relating to building construction, sanitation, city planning and zoning, landlord and tenant relationships, purchase and sale of property, and taxation of residential property, and recommended a comprehensive program for the improvement of housing legislation.

The purpose of the Committee on Standards and Objectives was to define the objectives of housing and home building policy. This led to a statement of desirable standards for American homes of all sorts, urban and rural, covering such questions as space, design, materials and practices, equipment, heating, sanitation, lighting and ventilation. It was made clear that the study of objectives and standards should begin with an evaluation of individual and family needs and how they may best be met through efficient organization.¹

The Committee on Education and Service was formed to determine how the findings of the Conference could be brought to the

¹ There have doubtless been many occasions in which members of Conference committees have changed their minds and their positions in the months which have elapsed since the Conference with regard to debatable questions discussed within their committees. This was exemplified in the Committee on Standards and Objectives, in which the following members subsequently concurred in Dr. Compton's statement of dissent (see page 198) and in some instances elaborated their own views at length: Grosvenor Atterbury (qualified approval), Mrs. Albion Fellows Bacon, Wharton Clay, Miss Rose Greely, John Ihlder, and Franklin T. Miller. Surgeon General Hugh S. Cumming concurred in Franklin T. Miller's statement of dissent (see page 200).

The limited funds at the disposal of the Conference in recent months made it impossible to call a post-Conference meeting of the committee at which both points of view might be presented. The problem was too large to handle merely by correspondence for it contained many elements which would have to be worked out in committee meeting. Hence, the editors decided that only those dissents would be printed which were registered when the original report of the committee was presented to the Conference.

attention of the individuals and groups in the United States who would make best use of them. Its task was thus to find ways of making the work of the Conference to the highest degree effective in bringing about improvements in conditions of housing throughout the United States. This involved considering the relative merits of the various mediums of public education—exhibits, motion pictures, radio talks, pamphlets, etc.—and of the agencies which might best be utilized to disseminate and follow up the findings.

The function of the Committee on Organization Programs, Local and National, was to assemble and analyze the recommendations of the twenty-five fact-finding committees of the Conference and coordinate them into workable programs. To do this effectively, the committee studied methods of organization for communities—business and welfare organizations and departments of government—and attempted to determine from past experience in all sorts of educational and welfare activities the best types of organization for efficient service. Special attention was paid to the development of local initiative and responsibility, but problems also were found for continued research and educational service which would be handled better by national organizations.

The Committee on Research reviewed all studies and investigations of the Conference. It outlined subjects in the fields of housing and home building that will need continued study and experimentation following the Conference. This committee also made recommendations for the organization and financing of a well-rounded and coordinated program of continued research on housing.

* * * * *

A period of economic depression is a poor time to raise funds for following up the findings of a study of this magnitude. It is certain, however, that the recommendations of the correlating committees will largely be brought to fruition when circumstances render that possible. It is also possible that there will be future conferences dealing with these problems in the same widely representative manner which may carry housing science and practice yet further. A major value of holding such a conference during a period of economic depression consisted in such a period being, as stated by Mr. Lamont, "a good time to make an inventory of what had been accomplished up to that time, and to devise better methods

of producing houses so that when building should become more active we would move in the right direction and provide better houses at lower cost."

The effects of an undertaking of this sort are largely intangible. The members of the Conference committees, however, very generally expressed their conviction that the field of housing had been enlarged by the assembling of representatives of so many different professional groups, each of which had an interest in one phase or another of home building and home ownership. These committee members will make use, both local and national, of the principles and ideals as well as the practical measures discussed in the committee sessions to which they devoted themselves so loyally.

Another advantage of this Conference lies in the fact that it has helped the general public to an understanding of the discoveries, achievements and thinking of leading specialists in the field. It made America "housing conscious." The amount of space given to housing in magazines and the press has increased several fold and the circle of persons who are devoting time and effort to this subject has become correspondingly enlarged.

The researches in our colleges, and programs of local civic organizations, already reflect the findings of the Conference. Many national, state, and local organizations have adopted some part of its program. The most tangible achievement, however, was the passage of the Federal Home Loan Bank Act, which was, in principle, unanimously approved by the Conference at its final session, and passed by Congress seven months later.

Most important of all, the Conference assembled in one place an unprecedented range of data and experience on housing. The data and experience previously had been scattered and consequently inaccessible. The Conference compiled it in a useful form in a series of reports which constitute a solid foundation for the construction of the "science of housing" of the future.

JOHN M. GRIES,
JAMES FORD.

November 14, 1932.

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PART I. GENERAL SESSIONS OF THE CONFERENCE

CHAPTER I

ADDRESS OF PRESIDENT HOOVER

AT THE
OPENING GENERAL MEETING OF THE PRESIDENT'S
CONFERENCE ON HOME BUILDING
AND HOME OWNERSHIP ¹

You have come from every state in the Union to consider a matter of basic national interest. Your purpose is to consider it in its long view rather than its emergency aspects. Next to food and clothing, the housing of a nation is its most vital social and economic problem. This Conference has been called especially to consider one great segment of that problem—that is, in what manner can we facilitate the ownership of homes and how can we protect the owners of homes?

The Conference has before it also some phases of that other great segment of housing; that is, the standards of tenement and apartment dwellings. While at this time we give primary emphasis to home ownership in city, town, and on the farm, we are all of us concerned in the improvement of city housing. I hope we may at some future time subject the question of city housing to more definitely organized national intelligence through which we shall further establish standards which will give impetus to public understanding and public action to this, the question of blighted areas and slums in many of our great cities. I am confident that the sentiment for home ownership is so embedded in the American heart that the millions of people who dwell in tenements, apartments, and rented rows of solid brick have the aspiration for wider opportunity in ownership of their own homes. To possess one's own home is the hope and ambition of almost every individual in our country, whether he lives in hotel, apartment, or tenement.

While the purpose of this Conference is to study and advise

¹The general meeting at which the President delivered his address was held in Constitution Hall, Washington, D. C., Wednesday, December 2, 1931.

upon the very practical questions of community or neighborhood layout, of the design of houses, of materials, of building regulations, of zoning, of taxes, of transportation, of financing, of parks and playgrounds, and other topics, yet behind it all every one of you here is impelled by the high ideal and aspiration that each family may pass their days in the home which they own; that they may nurture it as theirs; that it may be their castle in all that exquisite sentiment which it surrounds with the sweetness of family life. This aspiration penetrates the heart of our national well-being. It makes for happier married life, it makes for better children, it makes for confidence and security, it makes for courage to meet the battle of life, it makes for better citizenship. There can be no fear for a democracy or self-government or for liberty or freedom from home owners no matter how humble they may be.

There is a wide distinction between homes and mere housing. Those immortal ballads, *Home, Sweet Home*, *My Old Kentucky Home*, and *The Little Gray Home in the West*, were not written about tenements or apartments. They are the expressions of racial longing which find outlet in the living poetry and songs of our people. They were written about an individual abode, alive with the tender associations of childhood, the family life at the fireside, the free out-of-doors, the independence, the security, and the pride in possession of the family's own home—the very seat of its being.

That our people should live in their own homes is a sentiment deep in the heart of our race and of American life. We know that, as yet, is not universally possible. We know that many of our people must at all times live under other conditions. But they never sing songs about a pile of rent receipts. To own one's own home is a physical expression of individualism, of enterprise, of independence, and of the freedom of spirit. We do not in our imagination attach to a transitory place that expression about a man's home being his castle, no matter what its constitutional rights may be.

But to return to our practical problems. Over thirty committees embracing the collective skill and experience of our country have been voluntarily engaged for the past year in collecting the best of experience from every part of our country, in collating it into definite recommendations for your consideration. Like the

solution of all practical problems, the facts first must be discovered; they must be assembled in their true perspective; and the conclusions to be drawn from them must be the inexorable march of logic. This Conference has not been called primarily on legislative questions. Its major purpose is to stimulate individual action. It seeks a better planned use of our Nation's energies and resources, especially those that are rooted in neighborliness and mutual help, and those that find expression in our great national voluntary organizations, in our schools and colleges, and in our research laboratories. The Conference represents a place in our mastery of the forces that modern science and modern technology place at our disposal. It is not to set up government in the building of homes but to stimulate individual endeavor and make community conditions propitious. The basis of its action is to collate the whole of our experience to date, to establish standards, to advance thought to a new plane from which we may secure a revitalized start upon national progress in the building and owning of homes.

About a year ago we held in Washington such a conference as this in relation to the health and protection of children. That Conference established new standards and a new and higher plane of understanding and action. It presented a set of standards and conclusions, and those conclusions, I am informed, have now been printed in literally millions of copies—through the associations which were interested, through state authorities, and municipal authorities. They have penetrated the thought and permeated the practice of the Nation. Many conferences have been called by the governors of many states, by the mayors of many cities, to consider and apply their conclusions. Their actions have already wielded a powerful influence in the administrative functions of government from the Federal Government down to the smallest community. They have been made the basis of legislative action. They have lifted the sense of public and individual responsibility in the Nation. And it is a result of this kind which we are confidently expecting from this Conference.

I notice that some—not the members of these committees—have contended that the development of city and urban life necessarily has driven us to less and less possible ownership of homes. I do not agree with that. The very development of transportation, the

advantages of distribution of industry today make the ownership of homes far more feasible and desirable than ever before. But it involves vast problems of city and industrial management which we should have the courage to face. It involves also a great problem of finance. The newly married pair setting out upon the stream of life seldom come to their new state with sufficient resources to purchase or enter upon that great adventure of life of building a home.

It has long been my opinion that we have fairly creditably solved every other segment of our credit structure more effectively than we have solved this one. In normal times the Federal Reserve System has given mobility to financing of commercial transactions. The agricultural banks and the insurance companies have given mobility to farm credit. The public exchanges have given mobility to the financing of industrial credit through stocks and bonds. Through various discount companies we have established mobility for the sale of automobiles and radio sets and fur coats on the instalment plan, where twenty or twenty-five per cent cash payments are gratefully accepted.

We have in normal times, through the savings banks, insurance companies, the building and loan associations, and others, provided abundant and mobile finance for fifty per cent of the cost of a home through the first mortgage. But the definite problem is not presented by those who can find fifty per cent of the cost of a home. Our chief problem in finance relates to those who have an earnest desire for a home, who have a job and who possess sound character credit, but whose initial resources run to only twenty or twenty-five per cent. These people would willingly work and apply all their rent and all their savings to gain for themselves this independence and security and social well-being. Such people are a good risk. They are the very basis of stability to the Nation. To find a way to meet their need is one of the problems that you have to consider; that is, how we can make a home available for instalment purchase on terms that dignify the name credit and not upon terms and risks comparable to the credit extended by a pawnbroker. Our building and loan and many other associations have made an effort to find a solution for this group, but it is as yet largely unorganized and the question substantially unsolved.

I recently made a public proposal for the creation of a system

of home loan discount banks.² That proposal is familiar to you, and I will not traverse its details at the present time. It was brought forward partially to meet the situation presented by the present emergency, to alleviate the hardships that exist amongst home owners today, and to revitalize the building of homes as a factor of economic recovery, but in its long-distance view it was put forward in the confidence that through the creation of an institution of this character we could gradually work out the problem of systematically promoted home ownership on such terms of sound finance as people who have the home owning aspiration deserve in our country.

And there are many other problems involved in your investigations which bear equal importance to the problem of home financing: The surroundings in which such homes are to be built; the very method of their building; transportation and other facilities which must be provided for them; and the protection that must be given to them from the encroachment of commerce and industry. All of these and many other subjects you will compass. You should be in a position, when you complete your work, to advise our people of new standards and new ideals for our country.

I wish to express our gratitude, in which I know you will all join, to the hundreds of committee members who have labored so devotedly and capably in preparation for your conference. I assure you of my appreciation for your coming and my confidence of the high results that will flow from your deliberations.

² A resolution was adopted by the Conference, endorsing the suggestion of President Hoover for the establishment of a system of home loan banks. The President's statement appears in "Home Finance and Taxation," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. II and the resolution appears in Chapter IV of this volume. This suggestion culminated in the enactment and approval on July 22, 1932, of the Federal Home Loan Bank Act, providing for the discounting of first mortgage paper by financial institutions which are members of the home loan bank system. (Public Act No. 304, Seventy-second Congress.)

CHAPTER II

ADDRESS OF DR. RAY LYMAN WILBUR

SECRETARY OF THE INTERIOR AND JOINT CHAIRMAN OF THE CONFERENCE

AT THE CLOSING SESSION OF THE PRESIDENT'S CONFERENCE ON HOME BUILDING AND HOME OWNERSHIP ¹

It has been my particular duty the last two days to look over the findings set out in your reports, to see whether there could be gathered together a certain group of statements that might be called *the* findings of the Conference, and I am going to present certain of them to you in the hope that you will feel that they represent goals as well as achievements.

Findings of the Conference

1. Each Community Should Develop, on the Basis of Definite Knowledge of Its Local Conditions, a House Building Program That Will Give It Dwellings of the Types That Will Meet Its Social Needs. There are several distinct groups in the population of every community. The most important of these groups is that composed of families with young children. For this group the most desirable type of dwelling is the one-family house, and the most desirable variety of the one-family house is that which stands free in its own grounds with ample space for outdoor activities.

2. Each City and Community Should Have a Master Plan. The desirability of a dwelling is largely conditioned by its environment. This environment, sooner or later, is affected by community planning or lack of planning. The blighted areas of our cities are in large part due to lack of foresight, to growth that was undirected and unregulated. A master plan for a city is one of the best safeguards of its good residence districts.

Since our contemporary problems so largely result from lack of foresight and of proper regard for the public interest, the necessity of judicious and well-conceived planning of cities and

¹ Dr. Wilbur's address was delivered at a general session of the Conference in Constitution Hall, Washington, D. C., on Friday, December 4, 1931.

of their outlying areas throughout the metropolitan region is indicated as a first essential for the correction of old evils and the prevention of new. Such planning involves a thorough understanding of human needs and of the nature of the public interests involved. It requires a knowledge of trends in urban developments, and a vision of a city which will provide a healthful environment for the rearing of children, and will be a source of inspiration and pride to its citizens as well as an efficient center for interests of commercial, industrial or civic nature. The layout of streets, blocks, lots, utilities, transit systems, parkways, playgrounds, and centers for business, industry or civic affairs should be conceived in such a way as to render homes accessible to places of work or recreation on the one hand, while protecting them from the confusion and bustle of industry and the dangers of through traffic on the other. Careful attention to planning and the layout of new subdivisions will make possible the most desirable types of setting and approach for each home and will at the same time make reasonable the charges for land, utilities and other services which under haphazard development may prove too heavy for the home owner of modest means.

3. Each City Should Be Zoned. By zoning of new areas, and the rezoning, where necessary, of old, it is possible to protect homes from undesirable neighbors and property values from instability. Areas for industry and commerce, as well as for residence, should be carefully delineated; but in a way which will permit enjoyment of permitted activities in each without interference by functions allocated to other areas; and in a way which will make the neighborhood store accessible for service but not a neighborhood nuisance.

The one-family dwelling can be protected from the invasion of the multi-family dwelling or apartment house and the charm and integrity of each neighborhood unit may be preserved. Carefully drawn provisions for set-back of homes and definite requirements of specific and adequate reservations of land about each dwelling may preserve a beauty in residential neighborhoods which otherwise would be lost under conditions of unwise and reckless land subdivision.

(Look over the places you know and see how far we are from that very wise and necessary idea.)

4. All New Homes, Irrespective of the Income of the Family, Can and Should Be of Good Design and Sound Construction. The further construction of flimsy houses of uninteresting or even ugly design is not necessary. Beauty is not a veneer to be applied at added cost, but lies rather in the lines of a house, its proportions, the relations of its parts one to another, and of the whole to its setting. A one-room log cabin may be a thing of beauty. Professional pride and responsibility on the part of architects, and carefully drawn programs to elicit by joint counsel the cooperation of contractors and builders, the manufacturers and distributors of material, the realtor and subdivider, may produce a radical change in the quality of the small home that is the result of mass production, while careful programs for the education of the taste of the home buyer may create an intelligent demand for good design and workmanship on the part of home buyers. It is demonstrable that quality pays, both by endearing the home to the family and by the enhancement of property and community values.

5. Soundly Built Homes Can and Should Be Rendered Available to All Home Buyers. Through the use of proper materials and processes, and through mass production, and stabilized, year-round construction, better homes may be produced at less cost than is at present paid for homes that rapidly deteriorate. The development of pride in workmanship and of high standards on the part of producers of materials and builders of homes can bring good new housing within the reach of a much larger buying public than is at present served and will at the same time serve all customers better.

6. Home Ownership Should Be a Possibility at Some Time in the Life of Every Thrifty Family. The stability and safety of the Nation require the well-advised development of individually owned homes. The first necessity for the promotion of well-advised home ownership is a system of home financing, adequate in amount and operated in the public interest so as to permit thrifty people to secure for themselves such a home. It should be possible for every thrifty and honest family at the proper time, not only to own its home, but also to secure disinterested and competent advice on all matters relating to such ownership. Home information centers, wise in their counsel, and

accessible to families in need of such advice are therefore desirable.

7. An Adequate System of Credit for the Financing of Homes Should Be Established. Any thrifty family, in city or country, should be able to borrow money at a reasonable rate of interest, with a reasonably long period of amortization, under adequate protection from unreasonable foreclosure. The system for the financing of homes should be so organized that the interests of the home purchaser, the lender and the general public will all be amply protected. Some device for the better mobilization of home financing credit and to render it more fluid, for the protection of lending institutions in times of depression, and to further facilitate sound home ownership at all times is clearly needed.²

8. Old Homes Should Be Brought Up to Standard. Since the majority of families now live in old houses far from convenient or comfortable in their planning or equipment, and far from modern in their sanitation, it is necessary that such advice and skilled service should be available as will make it possible for each family to discover what should be the next steps in the improvement of its own home and the most efficient ways of going about its repair or extensive remodeling, and modernizing. Since incomes limit the amount that may be expended on home improvement, it should be borne in mind that no excuse lies therein for inaction. Landlords can be helped to see their responsibility and can contribute greatly to the quality of homes at relatively slight expenditure. Home owners and tenants whose incomes are small may still make improvements by their own personal labor during such moments as they may find free for this type of work and bit by bit bring about changes that rid the home, one by one, of its inconveniences and sources of irritation, and render it a wholesome and attractive environment and a source of family interest and pride.

² A resolution was adopted by the Conference, endorsing the suggestion of President Hoover for the establishment of a system of home loan banks. The President's statement appears in "Home Finance and Taxation," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. II and the resolution appears in Chapter IV of this volume. This suggestion culminated in the enactment and approval on July 22, 1932, of the Federal Home Loan Bank Act, providing for the discounting of first mortgage paper by financial institutions which are members of the home loan bank system. (Public Act No. 304, Seventy-second Congress.)

9. Slums and Blighted Areas Should Be Eliminated. Since public neglect and a variety of other causes have produced blighted areas and slums in our cities which have become an economic liability and where conditions of living have become a social menace, the need is clearly indicated for measures which go beyond the home dweller to the community. This may involve either demolition of individual dwellings in case their reconditioning should not prove feasible or complete demolition of buildings on entire blocks, the replanning of the area as an entity and in relation to surrounding areas, and its rebuilding in accordance with its best usefulness to the community.³ Unless this problem can be met by private enterprise, there should be public participation at least to the extent of the exercise of the power of eminent domain. If the interest of business groups cannot be aroused to the point where they will work out a satisfactory solution of these problems through adequate measures for equity financing and large-scale operations, a further exercise of some form of governmental powers may be necessary in order to prevent these slums from resulting in serious detriment to the health and character of our citizens.

10. Industry, so far as Practicable, Should Be Decentralized. A basic evil in bad housing is land overcrowding. One of the most fundamental ways of reaching this problem is through broad policies for the decentralization of industry with provision for the rehousing of industrial laborers' families in individual private dwellings in the new industrial communities. To accomplish this, it is necessary to distinguish among the many industries and businesses those for which such relocation is most desirable and to see that the factors which now block such decentralization are brought properly under control. This may involve special study

³ The "Emergency Relief and Construction Act of 1932" (Public Act No. 302, Seventy-second Congress, approved July 21, 1932) provides, among other things, for the making of loans by the Reconstruction Finance Corporation to corporations formed wholly for the purpose of providing housing for families of low income, or for reconstruction of slum areas, which corporations are regulated by state or municipal law as to rents, charges, capital structure, rate of return, and areas and methods of operation, to aid in financing projects undertaken by such corporations which are self-liquidating in character. New York and Ohio are the only states having laws providing for the creation and regulation of such limited dividend corporations but such legislation is being considered in several states, notably Illinois and Pennsylvania.

of the freight rate-structure and special measures to eliminate the factors which now penalize desirable movement of industry.

But in new industrial villages as well as in new residential subdivisions, special pains must be taken to prevent the repetition of the mistakes of the past. The relation of industrial and commercial districts to those that are residential, needs most careful planning and so also does the layout of streets and lots, to facilitate the building of detached one-family homes with ample and protected setting properly served by public utilities, and all this at a total cost within the reach of the individual worker.

11. Well-Advised Large-Scale Housing Operations Should Be Facilitated. In view of the economies which should be available to each dwelling unit in large-scale operations, needless obstructions in the form of restrictive legislation, inappropriate taxation and difficulties in securing adequate financial underwriting should receive such attention by business groups and public agencies as will remove all needless handicaps upon the provision of good housing through mass production for the lower-income groups. It should be wholly possible to do this in a manner which will protect all public interests involved and at the same time release financial resources, business acumen and social vision for housing operations of a type and quality that will attract sound, conservative investment into this field in which the human needs are so great. To this end the leading business groups of our cities can, by making use of the best available advice and collective experience, make a contribution vastly greater than that which now characterizes business efforts in the field of housing for the lower-income groups. (That puts it up to the industrial leaders, those that have intimate relation with these housing groups, to make a serious effort to care for workers in the cities as they are often cared for in the plants that have been removed to the suburban or small city areas.)

12. Homes Should Be Freed from Excessive Burdens of Taxation. Existing practices in the assessment of real property and in the levying of taxes upon dwellings, especially those of the one-family house type, have resulted in such heavy and inequitable burdens that home ownership has been discouraged. The need is apparent for methods of assessment which will not penalize the small-home owner in comparison with the apartment dweller or

the business or industrial plant, and for forms of taxation which will not penalize or discourage improvement in homes already built. A program based upon thorough study of this subject is indicated as desirable in the large majority of our cities and states, as well as in rural districts, and alternative methods of raising public revenue should in each instance be considered with reference to their relative equity and their merit from the fiscal point of view.

13. Beauty as Well as Utility Should Be Made Available within the Home and in Its Surroundings. Furniture of good design and of sturdy, durable construction can be made available at prices not greater than are now paid for the ugly and flimsy furniture at present so widely sold. To solve the problem of making good furniture accessible to families of modest income, there will be needed cooperation on the part of the various professional, manufacturing and trade groups involved. They have an opportunity out of their professional knowledge, experience and resources to make a contribution which will have a marked effect upon the lives and happiness of millions of families.

Similarly, the professions and trades involved in the landscape planning and planting of home yards and gardens and in the provision of the accessories for children's play have an opportunity through cooperative study and action to bring charm into residential neighborhoods and the joys of outdoor living within the reach of all families, irrespective of their income.

14. The Conveniences, Protection and Opportunities Enjoyed by City Dwellers Should Be Rendered Available as Rapidly as Possible to the Residents of Rural Districts. Needless drudgery, due to imperfect and inadequate equipment or to serious lack of equipment, is found in the homes of millions of rural families. Though richly endowed in natural setting, the farm family may fail to enjoy some or all of the facilities which modern science and invention have brought within the reach of urban populations. Ignorance, imperfect trade organization, low incomes, and many other factors may contribute individually or collectively to this end. Systematic educational programs, universal provision of home demonstration services, general cooperation of civic leaders in rural communities in better homes demonstrations, increase of facilities for extension training, demonstration of equipment and utilities appropriate to the

rural home, and the cooperation of trade organizations and power companies and of public departments can be made rapidly to overcome these deficiencies and bring convenience, comfort and safety within the reach of ever-expanding circles of rural life.

(A while ago, in our effort to study the problem of some rural homes and of illiteracy, we were able to get the United States Chamber of Commerce, through various radio companies, to give us one hundred radio sets. These were installed in a hundred homes in the mountains of Kentucky, Tennessee, West Virginia, and North Carolina, where no one could read or write, so that for the first time these people came in contact with the world. Several interesting things happened. One was that the cooking got better. Another was that the women dressed better. They liked music and sermons. One result was that they wrote off one of our most popular New York preachers as a heretic.

Their contact with the extension lectures on cooking stimulated them to try other methods than the pot and the frying pan. The fact that evening was the best time to receive radio messages brought in the neighbors and, of course, if the neighbors came in, the family and the neighbors had to dress up a little. And the neighbors had to have something to sit on, so they began to make more furniture. The wants of these people were extended and increased and their homes improved by this device.

Most of our rural homes have more conveniences than those I have described, but the principle is just the same. These homes in one way or another are being connected up with the world and we must steer and guide them in the choices that they make so that the best things possible will be brought in for the benefit of the children.)

15. Household Work Centers Should Be Well Planned and Equipped. Needless fatigue, waste motion and restricted leisure result from haphazard or inappropriate planning and equipment of the work centers of the home. The cooperation of home economists, architects and engineers is essential for more efficient planning which may result in the elimination of needless burdens. As a matter of fact, the architect has a very large part to play in that kitchen development. Better organization of household activities requires study and help from competent centers of advice and experimentation. The objectives of home and family life must be considered at every step in the process so that there will be a

maximum opportunity for the fulfillment of interests and well-rounded development of each member of the household.

16. There Is Need of Better-Framed and Better-Enforced Legislation with Regard to All Types of Housing for the Protection of the Home and the Community. The present laws are often hampering to new types of construction. (That is very mild. As a matter of fact the present laws, regulations, and so forth, are worse than hampering. They are suffocating to many new types of things. There is nothing more antique in the United States than the plumbing code. It was out of date at the time it was put in.) States and cities profit little by one another's experience. The effects of existing legislation and enforcement have been inadequately studied. Greater uniformity, once adequate standards and objectives for legislation have been devised, would be desirable with due reference to local adaptations where necessary. The factors which interfere with effective enforcement of well-framed legislation need constant study which should lead to constructive cooperation by the public's representatives with the officials charged with the enforcement of the law. No law is self-enforcing, and it is only through the exercise of the rights of citizenship that the most desirable types of administration can be achieved. (You know, some of our worst rackets have to do with this building proposition.) Although a large part of the problem of housing is to be met by study and education, high minimum standards can be achieved only by legislation that is based upon scientific study free from inequities and discrimination and administered with a view to eliminating those evil factors in the home environment which may interfere in any way with the development of the individual.

17. The Need of Development of Further Research, Information Service and Public Education. Experienced leaders in each field have pointed to the need of further study of the problems with which they were concerned. The best programs are based on adequate and accurate knowledge, which still is often not to be had. Much waste of time, energy, and resources can be avoided by the establishment of a well-endowed central agency for the correlation of past and present researches and the initiation of studies in those fields which are most fundamental to wise policy. Such a center might serve also for the dissemination of the findings of research and accurate information to indi-

viduals or agencies which seek it, and through it, or in cooperation with it, should be developed well-thought-out measures for public education in all branches of this subject. Local home information centers, schools and colleges and civic agencies for the improvement of homes should be able to secure from it the help and advice which are necessary in the furtherance of their programs. The findings of laboratories working upon problems of fundamental equipment, utilities, construction, and more especially on tests of new inventions, processes and technological developments, should, through it, be rendered available to those who should make use of them without needless lapse of time. By this means, progress in the development of sound knowledge in the field of housing would be rendered much more rapid, and through the dissemination of such findings we would get rid of the present lag between discovery and availability for use.

18. The Promotion of Home Ownership and Better Homes Is the Prerogative of All Civic Leaders and of Citizens. The interest and cooperation of public departments, business men, commercial and industrial organizations, professional and civic groups, should be available in the planning of well-judged measures and policies to remove influences that interfere with the universal provision of desirable conditions of housing and to provide as rapidly as possible for desirable conditions of living for all families, irrespective of income, race, occupation, or other factors.

Conclusion

I have tried to sketch in these headings some of the main findings as they have been worked out from your program and your reports.

This Conference has opened up a number of questions of vital importance to the welfare of our Nation. The contributions from all of the committees have been of unusual quality, and in some cases I think we can say that they are outstanding. Some of the most important problems in housing associated with the slums and blighted areas of our cities certainly need technical and financial as well as prompt solution. The promising reports that have been placed before this Conference indicate the probability of unusually satisfactory results if new conceptions and new methods described can be put into practical application.

Even in Puerto Rico, cooperative efforts for the building of

homes have been unusually successful when the homes have been combined with small tracts of land for cultivation. Similar experiments need to be tried more widely in this country.

Broadly speaking, proper housing is vital to wholesome living. Upon wholesome living depends the success of our democracy. Health, happiness and good citizenship are furthered by proper housing. Unhappiness, delinquency and crime are furthered by bad housing. We have still to determine the effect of our methods of housing upon our primary biological needs, but we can be sure that we can not change materially the essentials of human habitation without reacting biologically. We can learn from the birds. The shiftless, careless robins who pick poor places for their nests and build poor nests, raise but few young who become full-fledged, successful robins. We are endeavoring within a few decades to remold the mass of individual changes brought to us in almost overwhelming manner by science and invention. No matter how greatly our mobility has increased, our human needs for home with its joys and comforts and children remain unchanged. While electricity, the telephone and the radio, and perhaps now television, bring the homes closer in contact with the world, they make it all the more important psychologically and physiologically to have a place of retreat and comfort that we can call "Home Sweet Home."

The President asked me this afternoon, in closing this meeting tonight, to give you a message from him. After again expressing his gratification at the splendid work and the willing work which you have done, he said that he thought he ought to notify you that the work of this Conference has just now well started. You are all enlisted for the war. He expects that you will go ahead, that you will be back here again in a year or so; that you will keep on with your studies and with this work. There will be a continuation committee appointed to follow up what has been done, to give adequate publicity, and to facilitate further meetings of this Conference or parts of it in accordance with the need.

He tells me to notify you that you are enlisted for further service which will not stop until every American home is clean, convenient, wholesome, sanitary, and a fit place for a mother and father to bring to maturity young citizens who will keep our Nation strong, vigorous, and worthy.

CHAPTER III

ADDRESS OF MRS. JANE DEETER RIPPIN

AT THE CLOSING SESSION OF THE
PRESIDENT'S CONFERENCE ON
HOME BUILDING AND HOME OWNERSHIP¹

The Home in a Changing Day

Throughout the Conference I have been reminded of an essay written by a little girl. Her subject was *Man*. "Man is what woman has to marry. He eats, sleeps, drinks, but seldom goes to church. Both sprang from apes, but woman sprung the farthest."

In the matter of housing and home building, we must admit that men have sprung the farthest, but this Conference bears witness to the fact that women are going to try to keep abreast. The purpose of this Conference on Home Building and Home Ownership called by the President is to find out what kind of homes we have and what kinds we need in this country; how to make them more adaptable to present-day conditions; and to suggest practical means of bringing about these adaptations. This task is one for both men and women, working side by side.

The houses which we are called upon to evaluate are houses which have been built by men, but the activities in those houses are carried on by women. The point at which we are now, is to make the home more nearly fit the activities which go on in it. Women have been too used to getting along with things as they are—or things as they were. If men had had to do the kitchen work or care for the babies for a while we would have the same efficiency in houses for women to work in as we have in factories and offices for men.

This is the first time that men and women from all parts of the country have come together to discuss this great question of making homes more fitted to the art of living. Here we have

¹ Mrs. Rippin's address was delivered at a general session of the Conference in Constitution Hall, Washington, D. C., on Friday, December 4, 1931. Mrs. Rippin was for twelve years National Director of The Girl Scouts, Inc., and has long been active in social work with special reference to the welfare of women and children.

assembled the homemaker, the home builder—the architect, the contractor, the decorator, the engineer, the dealer in materials, the financier of houses, the planning and zoning specialist—and the buyer and seller of real estate and others in allied callings. The measure of the success of what comes out of all this will be whether, in the next decade or so, we shall find our homes built around families and the activities of family life rather than built merely to put more dollars in somebody's pocket; and whether those homes are available to *all* families—those with incomes of \$2,000 as well as those with incomes of \$20,000.

Let us take a look at these homes in which we live today and inquire how they have come about. The starting point of the changes in the modern home really dates back two centuries to the invention of a practical steam engine. Up to then our forefathers had got along with pretty much the same mechanical facilities that were at the service of the Greeks two thousand years ago.

That steam engine of James Watt's heralded the mechanical revolution which has changed homes along with everything else. Once industrial plants, homes have gradually shrunk in size and developed into highly mechanical, push-the-button affairs. Families have walked out of them to a very large extent, and yet in spite of that, the most important periods and events of our lives still take place within the walls of the home. And if we make those homes more nearly what they should be, some of us believe that families will walk back into them.

We have, in other words, come to a stage of evaluating the home—a state of healthy discontent with houses which have been imposed upon us by various conditions that we have accepted without thinking. This Conference tells us that we have come to a conscientious choice when we are asking ourselves if we are to be masters of our homes, or if they are going to master us.

We find ourselves no longer content with mere houses. We are asking for real *homes*—homes more nearly in the spirit of the Early American home, but adapted to wholly different conditions.

Our reaction is one of annoyance and impatience rather than one of gratitude toward the inventor of the mechanical device which has reduced our drudgery. Think of Mr. Edison's contribution to the comfort of the home when he wiped out the necessity for cleaning and filling kerosene lamps. Yet how many of

us thank God for his application of the incandescent lamp instead of being annoyed when the bulb burns out?

When our automobiles do not work we push them over to the curb and call the garage man. Little do we think of the inventor of the motor that has carried us so many thousands of miles.

A great many of these devices are things to be thankful for, but others we have installed without much thought, due to high-pressure salesmanship. How many of us have innumerable mechanical devices littering our kitchen shelves, unused? We need to consider, in adding anything to our homes, its relation to the happiness of the individual who uses it and to the convenience of the family.

Now we are coming to a place where we must assay our homes, must more clearly think through this whole important question of homes and their equipment. How many of us are living in a home which really suits us, which is not a compromise with the contentment of some member of the family? How has the furniture been purchased? Has it been chosen in relation to the individual needs of the members of the family and appropriateness to the home environment, or merely because it was near at hand in a convenient furniture store?

We should think not only of adults but of babies and growing children when we buy furniture, of its relation to health and posture as well as beauty.

The old-fashioned parlor with its drawn shades and its tidies has gone, but instead we have the more or less superfluous dining-room used only three hours a day. It is true that in many homes it is shrinking into a dinette or a breakfast nook. Why not redesign the dining-room and its furnishings and make it serve more needs—of the children of the family, for instance? Why does the dining-room table always have to remain in the center of the room? If it were equipped with convenient casters such as there are on hospital beds it could be easily rolled to one side when not in use. The room could then become a playroom, or in the evening a study room for the school children, while mother and father have their guests and interests in the living-room.

There will always be the need for more and more mechanical devices in order that all women may have more leisure. Let me say just here that one of the devices not yet invented is an electric

potwasher. The dishwasher is a most satisfactory device, but no one has yet demonstrated to us homemakers a really satisfactory potwasher. If men had had the kitchen work to do we can be fairly sure they would have developed a potwasher before they did the dishwasher.

President Hoover, in his address at Dearborn, said that the great electric cables never seemed to be cables to him, but that they were the carriers of rivers of sweat from the backs of men and the brows of women. I never see an electric drill at work, or a vacuum cleaner, that that sentence does not flash across my mind.

The new leisure which women have acquired has been partly turned to the housekeeping in their communities. But there have been large stores of leisure on the part of large numbers of women which have been wasted. They have not known what to do with it. They have been so glad to get rid of the drudgery of housework and kitchens that they have turned their backs on the home and gone forth without a plan.

The home now is beckoning them to come back and remold it to fit a new era—remold it physically, adding woman's understanding of the activities that go on there to the home builder's technical skill—remold it spiritually, bringing back to it some of its earlier values, but expressed in new terms. One of the things of which the modern home is accused is that it has not kept pace with the needs of youth. If youth has gone out of the home it has gone forth in search of those things it wants in life. When the home gives to youth its essential rights—youth will return. Those rights are:

1. The right to count in the family life.
2. The right of expression.
3. The right of adventure.
4. The right of joyousness.
5. The right of romance.
6. The right to the spiritual values of life.

Home is the place for the formation and not the reformation of youth. That is the challenge I leave with you tonight.

CHAPTER IV

RESOLUTIONS ADOPTED BY THE CONFERENCE

The Conference passed two resolutions in concluding its three days of work. They are as follows:

Resolution Number One

Whereas: President Hoover has stated that he would propose to Congress the establishment of a system of home loan discount banks;¹ and

Whereas: In the opinion of this Conference, the establishment of such a system as the President proposes will operate not only to relieve the present financial strain upon sound savings banks, trust companies and building and loan associations, but will also have a permanent value to the nation as a whole as a means of promoting home ownership in the future;

Now Therefore Be It Resolved: That the members of the President's Conference on Home Building and Home Ownership, assembled in Washington this fourth day of December, 1931, heartily endorse the plan of the President and pledge their support to the administration in its efforts to have the Congress enact appropriate legislation to establish the system proposed.

Resolution Number Two

Resolved: That the President's Conference on Home Building and Home Ownership expresses the hope that the President will appoint a continuing committee to carry on the work of the correlation committees of the Conference, receiving the reports of the correlation committees, and dealing with them in a subsequent report of its own.

¹The President's statement appears in "Home Finance and Taxation," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. II. This suggestion culminated in the enactment and approval on July 22, 1932, of the Federal Home Loan Bank Act, providing for the discounting of first mortgage paper by financial institutions which are members of the home loan bank system. (Public Act No. 304, Seventy-second Congress.)

CHAPTER V

MEMORANDUM AND RESOLUTION PRESENTED BY THE PUERTO RICO DELEGATION TO THE PRESIDENT'S CONFERENCE ON HOME BUILDING AND HOME OWNERSHIP

Introductory

In accordance with the general principles expressed in the plans of this Conference, we believe that we have in Puerto Rico, in our Homestead Commission, adequate governmental machinery to facilitate the operation of the plans of this Conference, provided that Puerto Rico is included in the plans and recommendations of the Conference and in any legislation that may be passed by Congress as a result of Conference findings and recommendations.

There is no place flying the American flag, under present conditions of depression and stagnation, more in need of the benefits of the President's home building plans than is Puerto Rico. Our island needs to build up a new economic life and enter into an effective period of rehabilitation. A program of home building and home ownership must be one of the cornerstones of this economic rehabilitation.

Despite the aforementioned conditions, Puerto Rico is, today, one of the six largest buyers of the United States on the American continent. Besides being a buyer which ranks with powerful and rich nations, the island helps to increase the wealth and prosperity of continental United States with two-thirds of the wealth produced by its men, women and children.

We have today a population of 1,543,900 inhabitants on 3,435 square miles, over ten times the population density of continental United States.

The insular government, under the leadership of Theodore Roosevelt as governor, has been engaged in the past two years in a heroic effort to raise the standard of living of the farming and working classes to approximate, in so far as possible, the standard of their fellow Americans on the continent. And one of the most

far-reaching and promising means has been the revitalizing and expansion of the Homestead Commission, originally created in 1920, but enlarged and made much more effective in 1930.

The Puerto Rico Homestead Commission

The Puerto Rico Homestead Commission is charged specifically with two functions:

1. To provide houses for working men in urban zones.
2. To homestead small farmers in rural zones.

Homes for City Workers. The main purposes underlying the laws under which the commission operates are:

1. To facilitate for the workers the means of securing a home on easy terms of payment, applying as instalment payments amounts they would pay as rent to a private landlord.
2. To encourage and stimulate the habit of thrift.
3. To improve the sanitary and health conditions of the home.
4. To reduce sickness and mortality among the workers by proper location of the home.

The Homestead Commission makes the plans, selects the sites, builds roads and streets, parks and gardens, and makes arrangements for the installation of electric light, running water and modern sanitary devices.

Up to the present, nearly one thousand homes have been built and provided to workers and employees in San Juan proper, and nearly two hundred more in Arecibo and Salinas.

The monthly payments made by the tenants on these houses range from \$3.00 to \$12.00 a month, and the period required to pay in full varies from ten to fifteen years.

Farms for Rural Workers. For establishing small farmers, unused tracts of government land are divided into farms ranging in size from two and one-fourth to thirty acres, depending on the fertility of soil, means of transportation, etc. These farms are leased to small farmers on an instalment plan of payments over a period of years which enables them to acquire the right of property. Each group of farms constitutes a colony. In each colony there is a government demonstration farm run by a competent agriculturist who acts as advisor to the homesteaders in all their agricultural problems. The government further helps in the establishment of schools in these farming communities, in the construction of roads, etc.

As government land is insufficient, the Homestead Commission is purchasing additional tracts, as funds become available. We have now about two thousand homesteads.

In the *Thirty-first Annual Report*, Governor Roosevelt makes the following recommendation :

“For rehabilitation purposes, after the cyclone, the Federal Government provided six million dollars to be loaned to our Puerto Rican farmers. Because of the circumstances with which I have dealt in this report, it will be very difficult for them to repay this loan in cash until many years have elapsed. If the Federal Government could see its way clear to turning the right to these funds over to the insular government, I believe we could handle matters in such fashion as to go a long way toward solving some of our most pressing problems.

“In the coffee district there are not only small farms, but comparatively large ones, also. Our belief is that the larger farms cannot be cultivated as profitably as the smaller, because better results are obtained where a man’s family does practically all the work. In other words, these farmers of larger tracts would be better off if they had less property. As it is, they often leave a part of their farm uncultivated. Almost all of them have loans from the Puerto Rican Hurricane Relief Commission. Very few, if any, of them will realize sufficient money to pay back these loans. If the right to them were ceded to the insular government, we could accept payment from them in land. We could then turn the land over to the Homestead Commission and establish farmers on small farms. In that fashion we estimate we very probably might be able to create twelve thousand to fourteen thousand small-farm owners.

“The matter might be arranged as follows : A certain sum or its equivalent in land allotted to the use of the Homestead Commission ; a certain further amount realized in cash allotted for the purpose of building schools, where we are now renting the buildings. This would automatically cut down our annual expenses, for we would be freed from the rent we are paying and would provide buildings under which our incipient industries could expand. What remained would go into a special fund for the purpose of improving rural roads, which are, of course, the arteries which are a prime essential for agricultural prosperity.”

In line with this recommendation, the Puerto Rico delegation to the President’s Conference on Home Building and Home Ownership, submits the following resolution :

Whereas: One of the greatest needs of the Island of Puerto Rico is the provision of small farms and small homes for a greater number of the people, and

Whereas: The Government of Puerto Rico has been working to this end through various methods, but specifically through the instrumentality of a homestead commission, which has as its purpose the establishment, by means

of a revolving fund, of farmers on small farms of their own to which they acquire title by easy payments over a long period of years, and

Whereas: By the action of this commission, already some two thousand families have been established on individual farms to which they are now acquiring title;

Now Therefore Be It Resolved: That in furtherance of this idea The President's Conference on Home Building and Home Ownership approve the general principles outlined in the *Thirty-first Annual Report of the Governor of Puerto Rico* for the disposition of claims and moneys of the Puerto Rican Relief Commission, and that, furthermore, Puerto Rico be specifically included in any Federal legislation to promote the aims and purposes of this Conference.

Submitted by

JOSÉ PADIN,

Commissioner of Education;

PRUDENCIO RIVERA MARTINEZ,

Commissioner of Labor;

HECTOR LAZO,

Manager, New York Bureau of

Commerce of Puerto Rico.

Washington, D. C.,
December 3, 1931.

PART II. REPORTS OF CORRELATING COMMITTEES

CHAPTER VI

TECHNOLOGICAL DEVELOPMENTS.

An Outline of the Development of the American House

We have no accurate records of the very early houses built in this country by the Norsemen and others. For settlements made after 1600, we have descriptions which enable us to picture the houses in which the early settlers lived.

Upon landing, the colonists built temporary shelters of the kind which could be most quickly erected from the materials near at hand. It is generally believed that these were log cabins. A careful study of documents relating to the early settlers, however, shows that the first dwellings were of much more primitive construction, made of materials such as branches, rushes, and turf; of palings and hurdles; of wattle, clay, and mud. In Virginia, some of the first houses were of sod, built round or oval. In Pennsylvania, some were cellars dug on high ground covered by lean-to roofs not very different from the dugouts used later in the West.

Very soon these temporary shelters were replaced by comfortable houses much like those to which the colonists were accustomed before they came to this country. Captain Edward Johnson, the founder of Woburn, Massachusetts, says in a book published in 1654:

"The English burrow for themselves, their first shelter, under some hill-side, casting the earth aloft on timbers. Yet in these poor wigwams they sing psalms till they can provide themselves houses."

Then about conditions a little later he says:

"The Lord hath been pleased to turn all the wigwams, huts and hovels the English dwelt in at their first coming into orderly, fair and well-built houses, well-furnished, many of them."

The log cabin was a great forward step in the development of the American house. Sometimes the logs were set upright in the

ground like palisades and roofed with logs and turf. The method of laying the logs horizontally, lapping the ends at the corners to give the well known cob-house appearance is, by some, credited to the Swedes and Finns who settled Delaware about 1638. The picturesque log cabin has become, by mutual consent, the symbol for American life under pioneer conditions, and for that reason may have received more than its share of attention.

When hastily built, there were wide cracks between the logs of these cabins. The roof was made of logs covered with brush and turf. The ground inside the cabin served as a floor. Undoubtedly the roof leaked when it rained and puddles formed on the floor. To keep out drafts, the cracks between the logs were covered with strips of wood. The use of mud or clay for chinking the cracks is said to have come into general use about 1800. Why this method of chinking the cracks was not used from the first is not very clear. If labor was available, the logs were hewn flat which greatly decreased the width of the cracks, thus making the chinking more effective. The roof was covered by "shakes," long thin pieces of wood split from straight grained logs and laid like shingles. The corners of the cabin were supported by stumps or large stones.

At first, the chimneys were of logs and sticks laid cob-house fashion, then chinked and plastered with clay. As one would expect, fires raged, as is shown by the records of Plymouth and Jamestown Colonies. Brick, and especially lime for mortar, were in many places unobtainable so that the stick and mud chimney was widely used until about 1700.

The logs burning in the fireplace supplied what heat there was for the cabin and for cooking. Pine knots were added to the fire if more light was needed at night. These knots were also extensively used out-of-doors as torches.

In wooded country, the wide use of the log cabin by pioneers having no tools but an ax, may be taken as proof that it was the most satisfactory house which could be built from the materials at hand. It lined most of the frontier from the very beginning and was replaced by other types of houses when and if the community became prosperous and other materials were made available by adequate transportation. Often, when the frontier rolled forward, log cabin communities were left behind and are still to

be found, especially where transportation facilities are very limited as in rough or mountainous country.

The Log Cabin Period, that between dugouts and well-constructed houses, has varied greatly in different parts of the country. If skilled workmen, money, and materials were available, as in the larger settlements along the Atlantic coast, at least some comfortable houses were constructed very soon. Under adverse conditions the log cabin may have replaced the prairie schooner as a home when the first settlers arrived, and it may still be occupied.

Some even insist that our Puritan ancestors never lived in log cabins, but that they graduated from dugouts directly to houses.

Many of the early settlers along the eastern seaboard were workmen. Among the one hundred and five passengers who arrived in the three ships which reached Virginia in 1607, there were four listed as carpenters, two as bricklayers and one as a mason in addition to twelve listed merely as laborers.

The type of house usually built varied considerably, depending upon the traditions of the colonists. In the South, where more aristocratic traditions prevailed than in New England, brick was used for some of the very early houses. Some of these were built in Virginia in the early part of the seventeenth century. The Dutch, who settled New York and New Jersey, built stone houses having gambrel roofs. Wood, however, was more generally used than any other material because it was abundant and easily worked. The ships which carried tobacco and other products to England and the Continent made money available for good houses. When they returned to America they brought tools and skilled workmen.

Most of the New England settlers were English yeomen or peasants who had lived in wood houses in England. Stone mansions were occupied only by the nobility until the demands of the British Navy made wood scarce, when stone and cob (earth) cottages came into use.

These yeomen felled the trees, preferably oak, and squared them with an ax. The frames for the sides of the house were then fitted together flat on the ground by the use of tenon and mortise joints secured by oak pins. These were then lifted into place by the united efforts of all the neighbors and fastened to form the structural framework of the house. The frame was enclosed on the outside by clapboards split from logs. In other

parts of the country, stone, brick, and clay were used to fill the openings in the timber frame. The roof was shingled with shakes. Nails forged by the local blacksmith were used sparingly. The floors were laid with oak planks of random widths secured either by nails or wood pins. They had much the appearance of the deck of a ship. The close contact of the early settlers with the sea and the fact that many carpenters built both houses and ships led to the use of similar methods of construction for both. To be sure, the children got many splinters in their feet until the floor wore smooth, and the nail heads made the floor wear unevenly, but these were minor inconveniences. Sometimes wood or brass dovetail keys or butterflies were mortised into the edges of two adjacent planks to prevent spreading.

White pine, which was easily worked, was generally used instead of plaster on the inner walls for interior partitions; it was used also for corner cupboards, and for other interior fittings. Batten doors of white pine were extensively used inside the house, hung on hand-wrought iron hinges and provided with wrought-iron thumb latches.

Many New England houses built after 1700 had walls insulated by soft homemade brick laid in clay mortar which filled the spaces in the frame between the clapboards and the inner sheathing. Clay wattle, seaweed, grass, leaves, straw, and other materials were also used to fill these spaces.

A typical two-story house of this period was very simple in design. It was a rectangular box having unbroken roofs sloping steeply from a central ridge pole. The front door was in the middle and flanked by two windows on each side. On the second floor, the windows were directly over the first-floor windows and door. Porches were unknown. Inside, the arrangement was very simple. Opening the front door, one faced the narrow enclosed stairway beside the big central chimney. On either side were the doors leading to the two front rooms. The kitchen was at the rear of one of these rooms, often in an extension.

As lime for mortar was very scarce, little masonry was used. The house, therefore, was set close to the ground. Often fresh stable manure was banked about the foundations each fall to make the house warmer. Cloth cylinders filled with sand were used at doors and windows to keep out drafts. The ceilings were very

low, usually about seven feet, and the joists and planking of the upper story were visible in the rooms below.

At first, oiled paper was used in the windows; then very small panes of glass were used because larger panes were too expensive. Some windows had twenty-four panes of glass in the two sashes. Solid wood shutters were often fitted to the lower windows, and blinds to the upper windows. These were usually painted green, but sometimes blue or pink, in contrast to the house which was usually painted white. Many of these houses, however, were unpainted. Often the wood walls, partitions, and ceilings were unpainted.

The chimneys were of brick or sometimes of stone laid in lime mortar, and the houses were heated by open fireplaces in which wood was burned. The kitchen was provided with a crane for the fireplace and sometimes with a brick oven for baking.

Water was supplied by a well near the house, usually being drawn to the surface in a bucket by a windlass or well-sweep. Soft rain water was collected at the eaves by wood troughs and stored in a hogshead at the corner of the house.

Rush lights, or iron or brass "Betty lamps" in which oil or tallow was burned by a wick, were used for light.

The Fairbanks house at Dedham, Massachusetts, was built in 1636, only sixteen years after the Pilgrims landed. The John Alden house at Duxbury, where John and Priscilla lived, was built in 1653. Other houses of this kind are still in use at Cohasset, Hingham, Lexington Green, Concord, Salem, and Plymouth. Although the timbers were hewn by hand from logs, the cost was low because labor was cheap. An old account book shows that in 1640 John Davys, a joiner, contracted to build a house for William Rix, a weaver, for £21—about \$105. To build even the crudest kind of a house required skill far beyond that of present-day carpenters. The framing timbers of oak were scored and hewn by hand. Except for the ax marks, some of them are about as true and square as if they had come from a saw mill. Later, lumber sawed and dressed at the mill was used wherever it was available.

The eighteenth century brought many changes in the social and economic conditions of the American people. The eastern portion of the country no longer suffered from attacks by Indians.

Commerce and industry flourished. Utility was no longer the dominant requirement for a house. Good housing, therefore, made rapid progress. On the frontiers, however, conditions were still very bad, resulting in miserable and unsanitary houses.

The houses became larger and of more classic style as was shown in the development of the colonial style of architecture. Dormer windows were used in the roof. In the finer houses, the stair rails, newels, and mantels over the fireplaces were elaborately carved. The walls of rooms were paneled and the height of the ceiling greatly increased. Entrances were carved and fan-lights used over the doors. This work was done by craftsmen having little training in the fine arts. They used very crude tools and hardware forged by the local blacksmith. They made their glue from the parings from horses hoofs.

Wood was most extensively used, especially in New England, even for the very finest houses until after the Revolution, because many colonists objected to masonry on the score of dampness. Fine houses of stone were common only in Pennsylvania. Brick was used for many houses, especially in the South. Stucco was used on brick and rubble walls to some extent from a very early date. A desire to increase the warmth and weather-resisting qualities of the house appears to have been the principal reasons for using stucco, rather than a desire to imitate stone.

One of the greatest contributions to the American house was the invention of the stove by Benjamin Franklin in 1742. It was a very crude structure, having the appearance of an enclosed box-like fireplace grate with a draft entrance near the bottom, and a pipe leading out from the top of the stove to the chimney. As stoves came into general use they were made more ornamental, decorated with nickel and designs cut in the framework. This stove was used for some time, and may be found even now in some of the old country homes. About this time soft coal was beginning to be used to some extent in Virginia.

One of the important developments of the early nineteenth century was the hot-air furnace, and the use of anthracite coal. The furnace, with its pipes, heating the entire house, conserved time and labor, and reduced the work of the housewife in keeping the house clean. The furnace, however, was too expensive to be used extensively at first, so the invention of the air-tight stove in

1836 was another economical contribution to the American home. As coal came into more general use, the fires were kept all winter without having to be rekindled. A later development was the Latrobe stove. The development of the hot-water and steam furnace has made these stoves less common, except perhaps, in rural communities.

Social conditions have influenced to a great extent the use of fuel. In the South, wood is still used more than any other fuel, as the climate is mild. In some sections, natural gas is taking the place of coal, while the use of coal, gas, oil, and electricity is increasing in most cities. The oil burner, gas-fired boiler and the automatic coal stoker are the latest achievements along the line of house heating appliances.

The use of candles for lighting became general among the well-to-do about 1700. Well-designed candlesticks of brass, pewter, and even of silver were common possessions. Outside the house, lanterns burning whale oil or candles were widely used. Gradually, glass lamps burning whale oil replaced candles. These, in turn, were replaced by lamps burning kerosene. Elaborate chandeliers were used with candles and later with lamps.

From the early part of the nineteenth century until the present, we have had an era of invention. Portland cement concrete has come into extensive use for foundations and other masonry. Most of the wood used in house construction is dimensioned at the mill. Flooring is tongued and grooved and doors and windows completed ready to be fitted into the house. Hardware is almost always produced by a large manufacturer. The use of metals has greatly increased.

Although these have all brought improvements in the house structure, it is in the heating, lighting, water supply, sewerage, and refrigeration that the most extraordinary developments have taken place and have come into very general use.

I. Introduction

1. One of the fundamental differences which has always distinguished man from other animals is that he has increasingly conditioned his immediate environment. The development of agriculture, including animal husbandry, is one important way in which this conditioning has been accomplished. Another,

equally important, is housing. At first, clothes came into use as a protection from cold and the elements; later, houses were developed which provided a limited space in which man ate, slept, and carried on his domestic activities and handicrafts. The house protected him from the fury of the storm, kept out wild beasts and enemies, and made satisfactory heating and lighting possible, thus greatly increasing man's efficiency in sedentary occupations. The conditioned environment inside the house was favorable to mental activity and to that extent encouraged science, literature, and art.

2. A great forward step was made when man left natural shelters, such as caves, and built houses, using the materials readily available. He could then live in a more favorable location close to his herds, fields, and hunting grounds.

3. As temperature inside the house has increased to the maximum desired, clothes have gradually become thinner and lighter. At present, in this country, where the houses, stores, and offices are well heated and railway cars, street cars, and automobiles are maintained at about the same temperatures as the houses, clothes are worn more to conform to custom and for personal adornment than to keep the body warm.

4. The development, from man's first crude shelters, of safe and efficient houses with chimneys instead of holes in the roof, glass in the windows, and the other features with which we are all familiar, was at first based upon trial and error which very slowly established the handicraft embodied in the customs of the people.

5. Only during the past hundred years or so has the scientific method been used to attain desired results. At present, science and technology provide a broad, smooth highway upon which our material civilization is progressing at an unprecedented rate. In recent years the investigations which have been made by governmental laboratories and by commercial and other organizations upon building materials and methods of construction have greatly increased our knowledge of how to build better houses, using present-day materials. Unfortunately, most small houses in this country, even the new ones, fall far short of the best practice because house builders and workmen are slow to adopt new methods and because the owners are conservative. For

office buildings, shops, and factories, new materials and methods are adopted almost over night, if laboratory tests show an advantage in using them. All of us will probably agree that the scientific method has been used comparatively little for small houses—much less than the importance of the subject justifies.

6. We must not overlook the fact that houses, dependent as they are upon available materials, the climate, and other conditions, have a profound influence upon the culture of the people who live in them. We like to think that intellectual activities such as science, literature and art flourish only in the conditioned environment of houses and that the labor-saving devices used in the modern house make time available for cultural and intellectual activities.

7. Houses, then, are one of the foundations upon which our civilization is built. Unless they adequately fulfill their manifold functions, our efforts to build a civilization which will insure health, comfort, and happiness will fall far short of our ideals.

8. In this report the Committee on Technological Developments suggests methods which, if followed, may be expected to provide small houses meeting the needs of our advancing civilization. The cost should be much less than the cost of the houses in which we are now living. The reports of the Committees on Construction and Fundamental Equipment give information on what can be obtained in a small house at the present time. The report of this committee is an effort to show how the cost of small houses of the future, without land, may be reduced to, say, \$2,000, thus rendering new housing available to unskilled labor.

II. The Technological Problem

1. It is generally recognized that the small house today does not meet the needs of the people—the first cost and the cost of maintenance are far too high in most cases, making home ownership impossible for families having a moderate income.

2. The situation has been graphically presented by Mr. T. J. Foster:¹

“Small house construction commands a prominent place in industry from the standpoints of volume and sociological importance, but it has been marking time for a generation. The methods used are antiquated and in-

¹“Steel Frames for Houses,” *Engineering News-Record*, January 16, 1930, Vol. CIV, p. 96.

efficient. Some houses are made from rough sketches drawn on paper or on boards, and for most of them the material is shipped in the crude state to the building site, where the wood is cut with hand saws, the pipe is threaded with hand tools, and the cutting and fitting of every element of construction is done in the slowest and most expensive manner.

"Attempts have been made from time to time to inject new life and modern view-points of efficiency into the house building field. . . .

"Shortcomings of Present House Building

"The dwelling house is the great exception to the rule that the advancing years bring increased output of labor per day. After a careful survey, the United States Department of Commerce places the waste in the building industry at 53 per cent, 34 per cent of which is chargeable to poor management, in turn a result of lack of simplification, inefficient methods and obsolete machinery. It estimates that this waste is two billion dollars a year. The percentage of waste is greater in small buildings than in large ones. . . .

"The outlook is equally grave from the point of view of the small house purchaser. He is the dupe of clever advertising and smooth salesmanship. For a few months after he takes possession the only financial drains are payments on the first and second mortgages. Then the small amount of insulation in the house shows up in an unexpected outlay for heating; the poor paint and varnish give out and must be renewed. Unsightly cracks and their corollary, vermin, appear because the lumber is of poor quality and not well seasoned, expanding and contracting with the changes of the weather. Poor and light materials make the house less fire resistant. Then comes the realization that this is the type of house on which the building and loan associations estimate the depreciation to be 10 per cent the first year, 9 per cent the second, and so on until, in a few years, 50 per cent is written off. It is impossible to pay for the house as rapidly as it depreciates in value."

3. The design of a small house which is satisfactory and attractive from an architectural standpoint depends upon the materials to be used and the method of fabrication. If the design expresses the function of the building, shows a logical use of the materials, and has a pleasing proportion of light and shade, solids and openings, it is good architecture.

4. When the technologists have pointed out the most suitable materials and methods of fabrication, it will then be the duty of the architects to work out designs for the small house which will be attractive. The small house of the future will, in all probability, not resemble any houses built in the past. It will be of good architecture if it shows honesty of purpose.

III. The Solution

1. The solution of the small house problem from a technological standpoint depends, primarily, upon the method of fabrication.

For convenience this may be considered in two groups—field fabrication and shop fabrication.

2. Field fabrication on the building site is, with some exceptions, almost universally used at present. Most of the material is cut and joined by workmen using hand tools, who are exposed to the weather and work under unfavorable conditions. These conditions have changed very little since houses were first built in this country. To be sure, the lumber is now sawed and dressed at the mill, and windows, doors and trim delivered at the site, ready to be cut and fitted, but much of the fabrication is still carried out on the building site.

3. Shop fabrication in large well-equipped plants has, in most other industries, given us products infinitely better and at much lower cost than those fabricated where they were to be used. To mention only one example, everyone realizes the advantages which have resulted from the modern method of fabricating automobiles. The shop fabrication of small houses is one of the most urgent problems which confront us at the present time. Whether it can be solved satisfactorily, only the future will tell but its importance justifies a well-directed effort to find a solution. Many of the materials used since time immemorial do not readily lend themselves to shop fabrication and the conservatism of our people as regards housing has not been favorable to simplification and standardization.

4. Shop fabrication by a large organization has the following advantages over field fabrication:

(a) Houses can be thoroughly worked out in the laboratory so that the most suitable materials may be used; their value can be determined accurately by tests and then they can be standardized for economical manufacture in quantity.

(b) Adequate inspection and tests can be made to eliminate materials which do not meet the requirements.

(c) Machines can be developed to perform most of the operations. Practically all the handling and moving of the product during manufacture can be done by power-driven equipment—much of it automatic.

(d) The workmen can become very efficient because each is expert on a particular operation, uses power-driven equipment, and is employed under favorable conditions.

(e) Adequate inspection and tests during and after manufacture can be made to insure a uniform product which will function satisfactorily.

(f) It inherently encourages the use of better and better materials.

(g) Lost motion, waste and damage are almost eliminated when the house

is erected later on the building site because the sequence and best method of carrying out each operation are carefully determined in advance.

(h) These new houses, which will appear queer to most of us at first, will come into extensive use because of their material advantages and their lower cost. As we become accustomed to them we gradually will realize that they are beautiful because they are logical.

5. Shop fabrication, however, has some limitations :

(a) Well-equipped shops would centralize the fabrication of houses in contrast to the widespread, poorly coordinated operations in use at present.

(b) The necessity for transporting the fabricated aggregates to the building site would affect the design, kind of material and method of fabrication and erection, depending upon the distance and method of transportation.

(c) The architecture, dimensions, and embellishments of the house would be limited by the necessity for economic production.

(d) Competent supervision of the field erection would be necessary.

6. If we attempt to describe a small shop-fabricated house which could be marketed in large numbers at a reasonable charge for advertising and selling, the following may be the result. Portions of the house as large as can be transported and erected economically will be fabricated in the shop. For lack of a better term, these will hereafter be referred to as "fabricated aggregates." The walls are formed of panels, say four feet wide and the height of the room. These panels are light and strong. They are easily and quickly joined to form a house of one, two, or three stories in height, having rooms of the desired number, size, and arrangement. The floors and roof are also panels of about the same size as the wall panels. The stairs are completely assembled, ready for setting in place in the building. The bathroom and kitchen may also be completely assembled—rooms consisting of floor, walls, and ceiling, ready to set in place. All pipes, ducts, and wires are built into each fabricated aggregate at the factory, connections being made after erection. Complete closets, dumb waiters, laundry chutes, etc., are placed in position as erection progresses. The chimney is in sections and, with complete fireplaces, is erected like the other fabricated aggregates. If practicable, both the exterior and interior surfaces of the walls will be finished ready for occupancy; if not, these surfaces will be finished after the house is erected, using special methods and equipment which will insure efficient and permanent surfaces.

7. Careful consideration of the possibilities of fabricating small houses in the shop leads to the conviction that they can be

produced at very much lower cost than houses of the same size are built at the present, probably at half the cost. The very great reduction in cost, due to the shop fabrication, of many other structures and machines which are widely used, such as the automobile, supports the belief that shop fabrication of house aggregates may accomplish a very great reduction in cost of houses. For success, it is essential that under competent management, architectural, engineering, and technical experts cooperate to work out the problem.

8. The shop fabrication of parts of a house, such as doors and windows, will undoubtedly continue and we may confidently expect it to include in the future many parts which at present are fabricated in the field; but unless they are finished ready for assembly in the field, there will always be cutting and fitting with waste and inefficiency, which will, to a great extent, offset the gain due to shop fabrication.

9. Although, at present, the fabrication in the shop of large aggregates is not very general, there is a definite trend in this direction. This is evidenced by the garages and kitchen sets now on the market. The companies manufacturing these aggregates have, usually, started in a small way and grown in size and output as they have learned by experience how best to meet the new conditions.

Anyone who studies the advertisements in the trade journals will be impressed with the number and variety of fabricated aggregates now available commercially. Much has been written about the efforts made in Europe, particularly in Germany and Russia, to provide apartments for workmen and others. Although these foreign developments are interesting and suggestive, we should not follow them too closely because conditions are very different in this country. Here, every workman wants land about his individual home and a garage for his automobile. This makes it necessary for us to work out a very different solution of the problem.

10. The bewildering array of new building materials now available will never come into its own nor aid materially in solving the small house problem if its application is left to craftsmen in the field accustomed to other materials. As they are trained and gain experience in using these new materials, better results will be obtained. There is a great need at present for the thorough

training of some craftsmen in each community in the application of each new material. Whether this can reasonably be expected of the manufacturer is a question. The value of any material cannot be determined by a consideration of its properties and of the price, but is dependent upon the design of the house, its intended use, the environment, the other materials, and cost limitations.

11. Even if the shop-fabricated house outlined above is unattainable at present, much can be accomplished by large organizations which, making use of the technological possibilities, develop houses by use of the best combination of materials to secure not only low first cost but low cost of maintenance, heating, etc.,—which simplify and standardize the materials they use and fabricate as much as possible in the shop. Much can also be accomplished by organizations which have an efficient staff in the shop and in the field and will guarantee results. There are now organizations of this kind building houses much like ordinary houses but of somewhat better material and workmanship and at some saving in cost.

12. A great opportunity, however, is awaiting the organization which, unhampered by precedent, although giving due consideration to the requirements and psychology of the American family, offers, at a materially lower cost, small houses which are safe, fire-proof, permanent, warm, comfortable, and, last but not least, pleasing both inside and out. A comparatively few designs for each of, say, four prices up to \$8,000, which would allow sufficient variation in the arrangement of the rooms and in outside appearance to avoid uniformity, would meet a great consumer demand. The materials and construction should not be subject to the whim of the purchaser. Details such as colors and lighting fixtures could well offer, within limits, the opportunity for exercise of individual taste.

13. Having outlined the possibilities for this solution of the housing problem in a general way, let us consider some of the details.

IV. Excavation

1. Power shovels and motor dump trucks can be used economically in many places. They should be used if the excavations for several closely grouped houses are made at the same time.

2. A cellar under the entire house increases the cost considerably. In the northern part of the United States, cellars are considered necessary for the heating equipment and for storing fuel. In addition, they usually provide much unnecessary storage space. Because a large amount of inflammable material frequently accumulates in the cellar, the fire hazard is greatly increased.

3. In some parts of the country the increasing use of oil and gas for house heating reduces the storage space required for fuel within the house. In these cases the cellar may be only large enough for the heating apparatus and perhaps the laundry.

4. If the cellar is small and only slightly below grade, the cost of excavation is reduced, the light and ventilation are better, and the cost of waterproofing is much less. On the other hand, the height of porch floors and windows is increased, which is a disadvantage, particularly because children and others may be more seriously injured by falls.

5. Advantage may be taken of building sites on hillsides by planning the house so that the cellar and garage may be placed where the grade is the lowest, thus decreasing the amount of excavation and allowing better light and ventilation.

6. When excavating, the topsoil should be kept separate from the subsoil and replaced on the surface when the grading is done around the house.

V. Foundation

1. **Materials.** (a) Masonry supports (stone, brick, tile, cement blocks, concrete, etc.) for the superstructure are satisfactory and no new materials seem likely to come into general use.

(b) In mild climates, wood, masonry and metal piers are satisfactory, but the space under the house should be enclosed for sanitary reasons, for thermal insulation, and to prevent the accumulation of leaves, etc., under the house, which increases the fire hazard.

2. **Waterproofing.** (a) Usually too little attention is paid to waterproofing the foundation. Damp foundation walls with the possible accumulation of water in the cellar are not only a menace to the comfort and health of the occupants, but cause rapid deterioration of almost every article in the house.

(b) Foundation walls may be injured by alternate wetting and

drying. Alternate freezing and thawing while the walls are wet cause rapid deterioration.

(c) The kind of waterproofing required depends upon the location and the soil. Surface water should flow away from the house, and pervious material (gravel), topped by impervious material, used against the outside of the foundation wall. This material should be well drained at the level of the footings.

(d) Before back-filling, the wall should preferably be covered below grade with alternate layers of coal tar pitch and felt saturated with coal tar pitch. Asphalt may be used instead of coal tar pitch if the latter is unobtainable. Under some conditions mopping the outside of the wall with the pitch or plastering the outside with mortar about one-half inch thick gives satisfactory results.

(e) Although the claim is made frequently that monolithic concrete walls can be made impervious to moisture without using the methods described above, considerable improvement appears necessary before such walls would be satisfactory for house foundations.

(f) Cellar floors should be hard so as to resist wear—concrete is preferable. Paint and other surface treatments reduce the amount of dust. Under unusual conditions it may be necessary to waterproof the floor as well as the foundation wall, using the same methods.

VI. Superstructure

1. **Wood.** (a) Wood is used more extensively than any other material in small house construction. At present, over sixty per cent of the lumber produced in the United States is used in building construction. Of this sixty per cent, approximately one-half is for farm buildings and one-half for urban and industrial buildings.

(b) In the highly competitive field of house building, lumber has lost some ground, partly due to methods of design too expensive or too inefficient to compete successfully with other building materials and with methods developed through engineering and scientific skill. Lumber will, however, remain the leader in this field if it gives better service through the development of improved construction, better design and assembly methods, and better selection, handling, preparation, and care of the material.

(c) At the present time, a wood frame house built in accord-

ance with the best practice, is quite satisfactory as a dwelling. Investigations made in government and other laboratories and verified by experience have shown how this material can be used economically to build a house which is strong and rigid.

(d) Some of the disadvantages of the wood frame house are its low resistance to fire, likelihood of deteriorating, and the tendency of wood to shrink and swell after it is in place. The cost of maintaining clapboards and shingles is relatively high, due to the necessity for periodic painting and repairing.

(e) Wood frame houses appear suitable for shop fabrication because the weight is low and fabricated aggregates can be designed so that they are not easily damaged in transit. In addition to doors and windows, there is becoming available an increasing number of wood parts for a house which are shop fabricated, such as porch columns, fireplace mantels, stairs, cupboards, and chests of drawers, either ready for assembly or partially assembled. Usually the surface must be finished, painted, etc., after the house is erected. However, there are floors now available, finished even to the varnish, which are ready for use when put in place in the house. If houses were standardized to the extent of having the length and width of the room multiples of four feet and the height nine feet, a great impetus would be given to the shop fabrication of house parts. Sheets of veneer or plywood, finished and decorated on the exposed surface, could then be shipped from the shop ready for erection. Satisfactory methods of making the joints could, undoubtedly, be devised.

(f) Houses for which each structural member is cut to size ("ready-cut") at the shop and then assembled in the field have been available in a wide variety of sizes and designs for the past twenty years or more. The considerable use of these ready-cut houses is an indication that they are satisfactory and effect an appreciable saving.

(g) Progress is being made in joining wood, as shown by the recent development of joints for structural members. The surfaces of the joint are covered with a powdered resinoid substance, then heat and pressure applied. These joints are said to be unaffected by moisture and to have a strength greater than that of the members. The extensive use of methods of fabrication such as these may be expected to result in the more economical use of

wood and to decrease some of the disadvantages which are generally considered inherent in wood construction.

(h) For small one-story houses the shop fabrication has been extended to completion, even to the paint, of panel units for the walls, floor, and roof which, when assembled on the building site, form a house ready for occupancy.

(i) In the future we may expect to see considerable progress in ready-cut, partially assembled and completely assembled aggregates for wood houses. Particular attention should be given to increasing the fire resistance of the wood to develop cheaper methods than those now in use. Although considerable progress has been made in the commercial treatment (toxic substances) of large structural timbers to prevent decay, there is a great need for methods which are both effective and inexpensive for the wood used in houses.

(j) The wood, when fabricated, should, for the best results, have the average moisture content corresponding to the conditions where it is to be used. This greatly reduces the detrimental effects caused by shrinking and swelling.

(k) For finished fabricated aggregates such as wall, floor, and roof panels, the heat loss should be decreased either by proper design of the unit or by using sufficient insulating material between the inner and outer surfaces. The surfaces exposed to weather should be finished in the shop by methods which will insure long life; the interior surfaces by methods which enable them to be maintained in a sanitary condition. They should not become unsightly under the use of soap and water. It is essential, also, that methods be found for eliminating all cracks and openings in the inner surfaces because they harbor dirt.

(l) Although some of these improvements in the wood house must await future developments, there is one which is thoroughly practicable and economically justified. Every piece of wood used in a house where it is likely to deteriorate should be mill-primed, after being kiln-dried,² that is, all the surfaces should be completely covered with vehicle (such as spar varnish) mixed with aluminum powder. This appears to be the most feasible way to use paint to prevent deterioration of the wood, caused by weather-

² "Aluminum Coatings for Moisture-Proofing Wood," *Technical Note No. 228*, Madison, Wis., Forest Products Laboratory, June, 1929.

ing. It is especially necessary to use mill-primed lumber for porches, steps, etc., which must otherwise be rebuilt every few years.

(m) Mill-priming of the structural and other members of a frame house would help to eliminate expansion and contraction with their consequences—cracked plaster, sagging door and window frames, etc.

(n) Although the use of wood members for structures such as textile mills has decreased, wood is reappearing in changed form such as wall board and plastics. There is a great opportunity for the development of plastics made from wood and other substances having very desirable properties—strength, fire resistance, wear resistance, color, etc. The fact that they can be molded to the finished dimensions, opens the way for the development of radically new designs which, if required in sufficient quantity, can be produced at low cost.

2. Masonry. (a) *Stone.* 1. In localities where suitable natural stone is abundant, stone houses are widely used. The small stone house has been carefully studied by Ernest Flagg,³ the architect, with beneficial results. By this method of construction, using common labor, the walls of one-story houses are built by erecting forms of rough lumber, placing field stone in the forms with the flat side against the form, then adding mortar for each course. After the forms are removed the joints are pointed. There is no cellar, the concrete floor being laid on the ground and surfaced with a suitable wearing surface. There is no attic and the roof is of frame construction.

2. With this exception there have been very few improvements in the methods of building stone houses in the past two hundred years and it is not likely that more efficient methods of using natural stone will be developed nor that the cost will be appreciably reduced.

(b) *Brick and Tile.* 1. Clay deposits suitable for making brick and tile are widely distributed in this country and these materials have been extensively used in house construction. Ceramic investigations have resulted in stronger and less pervious clay products and modern methods of manufacture have somewhat reduced the

³ Cary, H., *Build a Home—Save a Third*, New York, Reynolds Publishing Company, Inc., 1924.

cost. However, their weight makes it uneconomical to ship them great distances from the plant. Walls of brick and tile have a great resistance to deterioration and do not support combustion.

2. During the past few years, research work has greatly increased our knowledge of the strength of brick and tile walls and has pointed out the precautions which must be taken regarding the units, mortar, workmanship, etc., if high strength is required. This work has also resulted in the development of vesicular clay units which contain many small voids. The weight may be varied over a wide range down to about one-third that of solid units. Another development is the production of terra cotta units in a wide variety of colors and textures having light weight and sufficient strength for load-bearing walls.

3. Although these investigations show that clay units may be used to advantage for engineering structures, they do not yet indicate how the small brick house may be built appreciably cheaper or better than at present.

4. Recently, considerable attention has been given to masonry consisting of brick or tile reinforced with steel. Apparently, strength and other properties equal to those obtained in reinforced concrete can be obtained. Precast reinforced masonry units which have been suggested for small houses are:

- (a) Lintels over doors and windows.
- (b) Slabs for walls, floor, and roof.

5. Reinforced brick masonry, fabricated in the field, may be developed for hollow walls and thin hanging partitions similar to those now used in India. Many other portions of a small house could also be fabricated in this way, including floors and roofs.

Methods have been worked out for manufacturing reinforced brick panels for walls which are then assembled in the building. Although there is little doubt that reinforced brickwork, such as these panels, will have advantages for many engineering structures, its use in small houses is less certain and will depend, very greatly, upon the cost. Under competent supervision, satisfactory results should be obtained either when such brickwork is built into the house or when precast units are fabricated on the site. The possibilities for shop fabrication do not appear promising because of the weight of the units, and the fact that fabrication in the shop offers few advantages over field fabrication for these materials.

(c) *Concrete.* 1. Since the development of the engineering principles and the methods of design for concrete, and particularly reinforced concrete structures, this material has been extensively used. There is no doubt that a small concrete house can be built which is satisfactory from a technological standpoint. In spite of the great amount of attention which has been devoted to this subject and the repeated attempts to popularize this type of construction, it has not been used as extensively as its advocates have led us to expect. This has been due probably to somewhat higher cost than that of other methods of construction.

2. The conclusion seems justified that the cost, due to the amount and weight of the materials, the forms, and the skilful workmanship and supervision, makes the small concrete house uneconomical under present conditions.

3. When fabricated in the field, there is no indication that the cost will be materially reduced in the future.

4. There are decided advantages in the shop fabrication of completed concrete units for field assembly; but as usually designed, the weight of these units makes it uneconomical to ship them any great distance, and cranes are required to set them in place in the house. Vesicular concrete is now available in which the unconnected small voids are produced by gas generated by chemical action after the concrete is poured into the form. The weight may be reduced to about one-third that of solid concrete. Other methods of reducing the weight are now available, such as using light-weight aggregate—cinders, vesicular burnt clay, etc. These vesicular concretes have many advantages for the construction of small houses for which great strength is not, usually, required.

5. The development of designs using wall, floor and roof units about four by five feet would give a great impetus to shop fabrication. The materials could then be controlled carefully and mixed mechanically under ideal conditions. Steel forms could be used to give a thin reinforced slab of vesicular concrete having excellent properties—fire resistance, thermal and sound insulation, etc., and as accurate in dimensions as a piece of machined steel. It should be possible to assemble these units in the field without cutting or fitting and avoid any pointing or patching at the joints.

6. One of the disadvantages of the concrete house poured in the field is the great difficulty of obtaining a satisfactory exterior surface. The exposed aggregate should be carefully selected and different materials mixed to produce the required colors and texture. Before it has set too hard the film of cement must be removed, using wire brushes, water and perhaps dilute acid. The forms cannot be removed from walls until the concrete has set, which makes the cleaning of the surface very difficult and expensive. If the slab units are fabricated in the shop where they can be cast horizontal, expensive aggregate such as crushed marble can be added in a thin layer on the exposed upper surface, thus becoming integral with the slab. The exposed upper surface can then be cleaned easily, using mechanical appliances, when the concrete has set to just the desired degree. The artistic possibilities of concrete produced in this way are unlimited and the cost should be lower than any other method which would give comparable results.

7. If the slab units are thin, they might be lifted into place by two or three workmen. If necessary, a crane or derrick, mounted on a motor truck, could be used.

8. Concrete slabs may not be the best for floors and roofs. Perhaps wood or metal should be used. The walls and ceilings might be sheets of wall board, plasters, or other material having the exposed surface decorated. No doubt thermal insulation would be required between the concrete slab and the wall board.

9. Masonry houses, whether of stone, brick, tile, or concrete, are strong and fire-resistant. Thermal insulation may be required but masonry walls can be made free from cracks and openings which allow air leakage. The exterior surfaces require practically no maintenance for the life of the house.

(d) *Earth*. 1. Earth has been used from the earliest times for the walls of houses and is still used to a surprisingly large extent. Two methods are employed in the United States, namely: Rammed earth in which clay loam is compacted between movable forms very much as is concrete; and adobe, in which the soil is mixed with straw and formed into bricks which are hardened in the sun. This latter type of construction, employing sun-dried brick, is used very extensively in the Southwest and in certain other sections of the United States. Its use is due, no doubt, to

the fact that the workmen have become very expert in handling it and to the climate which is favorable for drying the brick economically out-of-doors.

2. Where it is used, the advantages of adobe construction are well understood. This type of construction, to be permanent, must have a masonry foundation and a good roof to afford protection against moisture. It is necessary to give an exterior coating to permanent structures; however, in arid climates, unstuccoed walls will last from thirty to forty years, which is longer than unpainted wood structures will last without opening-up so as to permit water to penetrate the interiors. However, it is very desirable to stucco adobe for aesthetic reasons and to increase the life of the structure.

3. Rammed earth, which probably can be used over a wider geographical range than adobe, is not so well known today; therefore, a brief description of the process is given here.

4. Rammed earth or *pisé de terre* walls have been used successfully in many parts of the world. In the Union of South Africa, in parts of Spain, and especially in the valley of the Rhone in France, it has been used for many years and still is very popular. There are a good many buildings of rammed earth in the United States. A very interesting group, still in good condition, is located near Sumter, South Carolina, including a Gothic church, built about 1820, one hundred and five feet long by twenty-seven feet wide, with a transept fifty-nine feet wide and twenty-seven feet long. The gables are about forty feet high and the tower is forty feet high. An implement shed and several other farm buildings in the vicinity of Washington, D. C., have been built recently. There is a residence at Cabin John, Maryland, which is a good example of the use of rammed earth in a modern building. It was completed in December, 1923. The outer walls, from foundation to the sills of upstairs windows, are built of rammed earth. The outer walls are eighteen inches thick without reenforcement and with no bonding of the corners. The earth was obtained from the excavation for the cellar. There is a full basement under the superstructure, divided into three rooms, separated by rammed earth walls twelve inches thick. The outer walls are capable of supporting a weight of more than 2,000 tons. (See Figure 2.)

5. Rammed earth walls are more homogeneous than are those

of adobe and, in addition to having many of the merits of stone, brick, and concrete masonry, possess greater insulating and fire-resisting properties.

6. Where the drainage is indifferent, the foundation must be of stone, brick, or concrete, properly waterproofed to stop water rising to the earth walls by capillarity. Detachable forms made of one and seven-eighths inch dressed pine or other light-weight wood, well cleated and twenty-seven to thirty inches deep, are commonly employed. Into these forms the soil is placed to a depth of four inches and rammed until it rings. It will then have a depth of two and one-half inches. The upper surface is then roughened and another layer of loose soil is thrown in to a depth of four inches and rammed. This process is repeated until the forms are full. The tie bolts are then withdrawn and the forms are immediately reset and the operation repeated. Light, sandy soils or so-called gumbo clay are not suitable for *pisé de terre* construction. Soils containing a total of fifteen to fifty per cent of colloidal material and the balance of fine to coarse sand are eminently adapted to rammed earth construction. It should be well-riddled subsoil, free from roots, sod, or other vegetable matter. Walls of rammed earth should range in thickness from twelve inches to twenty-four inches, depending upon the strength of the soil and on the ultimate height to which they are to be raised. In Lyons, France, are to be seen *pisé* structures five stories high. Laboratory tests show a compressive strength ranging from ten to thirty or more tons per square foot of well-dried wall. Some form of reenforcement at corners and around openings, especially in the larger structures, is very desirable. Fireplaces and chimneys of rammed earth have been built into some houses and have proven satisfactory; however, firebrick should be used to line the fireplace and clay flue lining used in the chimney.

7. The exterior surface of rammed earth walls must be protected by a weatherproof covering, if permanence is desired. This is best and most effectively accomplished by either a wash or a plaster consisting of various mixtures containing Portland cement, lime, etc. The inner surface of such walls may be coated with ordinary plaster, cement wash, alabastine, paint, etc., or it may be papered. No lath is necessary, since the wall, if properly scored, holds the plaster or wash.

8. When rammed earth walls are protected from the elements,



Courtesy of Better Homes in America

FIGURE 1. An adobe house demonstrated by the Better Homes in America committee at Marysville, California. It was built of the mud of the vicinity and cost only \$3,200.



Courtesy of Dr. H. B. Humphrey

FIGURE 2. Rammed earth house. Residence of Dr. H. B. Humphrey, Cabin John, Maryland. This house, of Dutch Colonial design, was erected on a foundation of poured-concrete blocks.

they are just as permanent as those of brick or stone and, especially if reenforced, are no more susceptible to damage by earthquakes than are other types of masonry. Such walls are adapted to any part of the world where suitable soil is available. Houses, stables, storehouses, garages, machine sheds, poultry houses, and many other structures may be most economically built, if suitable earth can be obtained on the site. Rammed earth walls possess a very low coefficient of temperature conductivity. Hence, houses constructed of this material are cool in summer and warm in winter and have the added virtue of being almost soundproof. The walls are one hundred per cent fireproof.

9. The reason rammed earth has not been more widely used in this country is rather difficult to explain. From about 1750 to 1850, the technical literature shows that it was an accepted material for buildings; structures erected then are still standing in good condition. Two reasons sometimes given to account for its not being more widely used at present are that the discounts allowed contractors on manufactured materials cannot be realized and that there is no commercial organization promoting its use. It should be given serious consideration by some adequately financed organization equipped to build experimental houses for the purpose of determining the economic value of the material, especially when a number of similar structures are to be built at the same time, for which modern construction equipment could be used to advantage. On farms where such equipment may not be available and where common labor is obtainable at relatively low wages, it may be more economical to erect the walls by hand. The cost per cubic yard will depend upon the cost of labor. There has not been sufficient work done recently to determine accurate cost data. In making a comparison between the cost of rammed earth and the usual masonry construction, the comparison should be based on superficial wall area rather than on the volume of the walls, because of the extra thickness required for earth walls. In building the residence at Cabin John, Maryland, three men, one of them a skilled mechanic and supervisor, erected in a day a section of wall six feet long by six feet high by one and one-half feet thick or approximately two cubic yards. The work probably could have been more rapidly done, but not more satisfactorily, by modern construction equipment.

10. Until the use of rammed earth is well understood, particu-

larly the necessity for protection from moisture, this material will probably not be used successfully by inexperienced persons. The use of rammed earth and other similar indigenous materials could be extended and made an economic factor of considerable importance by building organizations sending out skilled workmen to erect the structure, accompanied by trucks equipped with labor-saving machinery and loaded with factory-fabricated units from the supply center.

11. Economy in building can be effected in a practical manner by factory fabrication of those parts suitable for mass production in a factory, such as floors, roofs, doors, and windows, and their transportation to the building site for assembly with rammed earth walls.

12. There is, undoubtedly, a decided prejudice against houses which, however adequate they may be from a technological standpoint, appear light and flimsy. Any effort to reduce appreciably the cost of the small house by shop fabrication will inevitably tend strongly in this direction. Because the weight of the fabricated aggregates must be low to permit distribution over a wide radius, the impression of flimsy construction is unavoidable. If, however, rammed earth is used for all walls and partitions and fabricated units for the roof, floors, and other details, the house will have solidity and permanence equaled only by solid stone masonry.

3. Metal. (a) *General.* 1. For some houses, metal has been used for the structural framework usually made of wood. The exterior walls have been of brick or stucco and the roof and floors made of wood or concrete, similar to those ordinarily used. Up to the present time the cost has seldom been less than that of the wood framework which it replaced.

2. Considerable progress has been made by the manufacture, commercially, of light-weight steel members, such as light-rolled shapes having thin flanges and webs, or of shapes formed from sheet steel. Other light steel members include lattice truss floor joists made from steel bars welded at the joints. These light steel members appear particularly suitable for house construction in which the loads are much lighter than those in most engineering structures.

3. Some of these metal members are furnished in the desired length, ready to assemble, but if they have to be cut in the field,

either because the previous work is not accurately dimensioned or because they have to be fitted piece by piece around dormer windows, etc., the cost may be much greater than if wood is used. The development of ready-cut metal frames would overcome this difficulty. If the cutting of steel members in the field is necessary, it can always be done quickly if an oxyacetylene cutting torch is available.

4. Metal, and particularly steel, members have, until recent years, been joined by rivets. Welding, either electric or gas, has, during the past ten years, been developed to the point where it is now recognized as a satisfactory method of fabricating metals.⁴ Welding is particularly suitable for comparatively thin members such as are used in houses. In general, the cost of preparing the members for fabrication is found to be less than it is for riveting and this work does not have to be done so accurately. Usually all that is necessary is to cut the member to the desired length. Unless the riveted joints have gusset plates, etc., the strength of welded joints is, in most cases, greater. This is especially true for the thin members used in houses.

5. Equipment, readily portable, is available for use in the field, but the economic advantages of shop fabrication for welded structures are so great that, if the metal house comes into use, we shall soon see large fabricated aggregates welded in the shop.

6. There are theoretical advantages in using tubular members instead of angles and I-sections. They are stronger, when loaded, as columns and as beams if they are fabricated into a truss. The extensive use of metal tubes in the structural portions of airplanes shows that for a given strength the weight is less than for other shapes of cross-section.

7. If houses were designed to use steel tubes for the structural framework, there is no doubt that they would be amply strong and the weight would be low. Moreover, tubes having thin walls are very much less likely to be damaged in shipment than are shapes having thin, outstanding flanges. In the past the cost of tubes has been higher than the cost of equivalent shapes. The more recent development of tubes made from sheet steel formed into a tube and having the longitudinal seam welded may make

⁴ Priest, H. M., "Strength of Structural Welds," *Engineering News-Record*, September 17, 1931, Vol. CVII.

them available at a reasonable cost. When this time comes we may expect to see tubes used for house structures because welding offers a much cheaper and more satisfactory method of fabricating tubular members than either threaded connections or riveted joints.

8. However, the use of metal only as a structural framework of the house will not radically reduce the cost. The house will be better but not appreciably cheaper than those constructed by ordinary methods.

9. The technological development of the metal house should include a study of the fundamental requirements regarding the number, size, and arrangement of rooms, the strength and rigidity required, and the design of metal aggregates to meet these requirements without regard to precedent. If shop fabricated, these aggregates should be light to permit economical transportation over a wide radius.

10. If the metal is used efficiently from the structural standpoint, the heat transmission will be high; therefore, insulating material in the wall and roof aggregates will be necessary.

11. Shop fabrication of metal houses may develop along any one of several lines. First, structural members may be ready-cut in the shop and then assembled in the field, preferably by welding. Second, open frames may be assembled in the shop by welding or by other means, perhaps using wires under a high tensile stress for diagonal bracing. These frames, light in weight and not likely to be damaged in transit, may then be shipped to the building site and erected easily.

12. Welding, in all probability, will prove to be cheaper and more satisfactory than any other method of joining these frames in the field. An estimate which is sufficiently interesting to deserve consideration here has been made for the shop-welded steel frame of a typical six-room residence containing about six and one-half to seven and one-half tons of steel. The shop-fabricated aggregates were designed so that the field erection and welding were expedited. Experience shows that a gang of six men and a foreman, using a mobile crane, would erect the house, including the steel for the floor and roof, in two or three days, if the foundation had been properly prepared. The joints would be secured temporarily by C-clamps, then welded and the clamps removed. Assuming that the oxyacetylene torch were used for the field weld-

ing, the gases would be transported to the building site in steel cylinders. The cost of one hundred cubic feet of the two gases, delivered, ranges from \$1.75 to \$2.50. Roughly twenty-five to thirty-five cubic feet of the gases provide sufficient heat for the deposition of one pound of weld metal which will join one-fourth to one-half ton of residence construction steel. A welder will average from eight to twelve pounds of deposited metal in an eight-hour day. Excluding overhead, the cost of labor and materials for the field welds would be about \$50. A similar estimate for electric welding is not available but it may be expected to be about the same. Only after this method of construction has been used for some time will accurate cost data for a particular size and type of steel-frame house be available.

13. After erection, the structural frame may be enclosed, using brick veneer, stucco on metal lath, etc. Metal floor and roof panels, concrete or gypsum slabs, preferably precast, could be used to advantage in this type of construction. Cork blocks have been used between the upright steel members and stucco applied directly on the outside and plaster on the inside. If the house is to be stuccoed, it is evident that the steel mesh should be attached to the frames in the shop by welding, then the stucco applied in the field after the insulation is put into place.

14. The shop fabrication may be carried a step further by enclosing the frames on the exterior and interior surfaces. Methods will, undoubtedly, be found for finishing these surfaces so that nothing need be done to them after they are erected. The interior walls and floor should be colored and decorated ready for occupancy, and the exterior surfaces of walls and roof ready to resist the elements for a long period of time. If it is found to be impracticable to fabricate aggregates of this kind because the finished surfaces are marred or damaged when transported to the site, it may be necessary either to apply finish, paint, wallpaper, etc., in the field or to enclose one side of the frame, say the exterior surface finished, then use shop-fabricated sheet, wall board, etc., finished and decorated for the interior surface, which can be set into place after erection without cutting or fitting. Until this subject has been carefully worked out, it is impossible to predict just what combination of fabricated aggregates will prove most practicable and economical.

15. The exterior surface of the frames may be enclosed in the shop, using wood, brick, stucco, concrete, plastics, metal, etc. Apparently wood, plastics, and metal could be used to advantage from the transportation standpoint. Plastics may be too expensive. Metal in sheets may have advantages because it can be welded and may serve as diagonal bracing.

16. If both the exterior and the interior surfaces of the frames are enclosed in the shop, adequate insulation should be provided, perhaps by filling the spaces with granular insulating material which is less expensive than sheets or blocks. If only the exterior surface is enclosed, insulating blocks which fit the spaces may be put into place after the frames are assembled, and then the interior panels set into place. Perhaps the spaces can be filled with granular material in the field after the interior panels are in place.

17. Metal floors suitable for small houses are now available. Light-weight rolled I-sections have been used considerably, especially for the first floor, to prevent the spread of a fire in the cellar. A reinforced concrete slab is supported on these beams which encase the upper flange of the beams, making bridging unnecessary. The finish floor may be wood, linoleum, or rubber tile.

18. The cost of such floors, complete, has been estimated at from \$.26 to \$.30 per square foot, and for floor of the usual wood construction from \$.15 to \$.18 per square foot, the cost depending upon the location. The battle-deck floor consisting of light-rolled I-sections, about four inches deep spaced about two feet apart, upon which steel plates about three-sixteenths inch thick are laid and the edges welded over the center of the flange of the beam, has been used in houses with a finish floor of linoleum or similar material.

19. Floors of sheet steel formed into corrugations and spot-welded to give a cellular structure are being developed, which appear to use the material efficiently. These and similar floor panels, having a width of, say, two feet and a length equal to the width of the room, appear suitable for shop fabrication, complete, ready to place in position in the house and receive the finish floor. They eliminate field fabrication almost entirely and should aid in reducing the cost of houses.

20. The development of other metal units fabricated in the shop

has not progressed to the same extent as floor panels but will undoubtedly be available when there is sufficient demand.

(b) *Structural Steel*. Low-carbon mild steel is satisfactory for the construction of small houses, particularly the structural members. If protected from the weather, it will last indefinitely.

(c) *Enameled Sheets*. Enameled steel sheets made in the same way as cooking utensils may have possibilities for fabricated aggregates for houses.

(d) *Stainless Steel*. 1. The comparatively high price of stainless steel has limited its use in house construction. Comparatively little attention, as yet, has been given to its possibilities in this field. In sheets, it is particularly suited for the exterior surfaces of metal wall and roof aggregates, shop fabricated, ready for assembling in the field.

2. Methods are being developed for coloring stainless steel sheets to produce pleasing effects.

3. It seems probable that the failures of thin sheet-metal houses in the past have been due to the rapid deterioration by corrosion where moisture penetrated the joints. Stainless steel should overcome this difficulty and, as the production increases, we should expect an appreciable decrease in the price.

4. Stainless steel has been used for sinks, drainboards, kitchen table tops, etc., and for heating equipment such as smokepipes and gas-fired furnaces. Its use in the future for these and similar equipment may confidently be predicted, even for the house of moderate cost, because the longer life would more than offset the greater cost.

5. Sheet material is now being developed, commercially, which consists of a soft steel base having a layer of stainless steel on either one or both surfaces. For a great many purposes this material has all the advantages of stainless steel and at a much lower cost.

(e) *Copper and Brass*. 1. Sheet copper has been used in Germany in the shop fabrication of complete units for small houses, which are easily and quickly erected in the field ready for occupancy. The walls are insulated. A five-room bungalow is said to cost \$2,000 and can be erected by ordinary labor in twenty-four hours.

2. This type of house is receiving consideration in this country

and will probably be available when the details are perfected. One of the most important of these is coloring. Attractive designs will also have to be developed.

3. Copper and brass are being extensively used for plumbing—copper for roofs, gutters and leaders, and solid brass and bronze for hardware and window screens, at a saving in cost over less durable materials if the longer life is considered.

(f) *Aluminum*. 1. Apparently no attempt has been made to use sheet aluminum for shop-fabricated units of small houses. When such houses made from other corrosion-resisting metals are available, it may be found that aluminum offers advantages, due to its light weight (about one-third that of copper, steel, etc.). Its use would reduce the cost of transportation and allow larger aggregates to be erected in the field without mechanical equipment. This material is available in any form or size likely to be required in small house construction. Shop-fabricated windows, doors, etc., are also available. The surfaces may be treated to obtain pleasing effects in colors, or painted if desired.

2. In addition to the structural members of the house, aluminum is used for parts of stoves, radiators, window and door screens and their frames, shutters, awnings, blinds, etc., hardware, lighting fixtures, and furniture, such as chairs, which weigh about half as much as wood chairs.

(g) *Corrosion*. 1. Perhaps the best advice that can be given on the choice of metallic building materials which, in service, may be subjected to corrosive influences is to consider, first of all, the corrosive influences which such materials must withstand. For example, roofing materials which give satisfactory service under rural and suburban conditions may be very short-lived under industrial or seashore conditions. Corrosion depends upon two conditions, the corrodent and the material corroded. The nature of the corrodent is just as important in determining the severity of the corrosion as is the nature of the material itself. This is a factor which varies greatly with local conditions.

2. There are no new low-priced ferrous materials on the horizon for use in buildings. The corrosion-resistant or stainless steels, which are receiving so much attention at present, are expensive, and the production is limited at present. All the ferrous materials corrode, although the rate of corrosion may vary somewhat, depending upon the chemical composition. They all require

the protection of metallic coatings or paint. This point should be strongly emphasized—the life of ferrous metals depends upon the degree to which the surface is protected.

3. Of the nonferrous metals, aluminum promises to become a real competitor with copper, zinc and other well-known metals in building construction. It is already being used to a considerable extent, and new applications may confidently be expected.

4. Comments on the different metals can best be made by considering specific uses:

(a) Roof

1. **Surfaces.** (a) *Copper, zinc and aluminum* in the form of sheets or shingles are the available nonferrous materials. For most exposures they are *very* satisfactory. In heavy industrial atmospheres (sulphurous gases), zinc and aluminum are attacked. The failure of copper by corrosion has been reported from a locality where a combination of marine atmosphere and sulphurous (industrial) atmosphere prevails. Lead is excellent for withstanding these conditions but is probably too expensive for the small house costing \$10,000 or less. Lead-coated sheet copper, which has recently become available commercially, appears to have excellent resistance to corrosion and the cost is less than that of sheet lead.

(b) *Sheet iron and steel* for roofs are always coated; galvanized (zinc-coated) sheets and terne plate (lead-tin-coated) are the usual materials. Excellent resistance is being claimed for lead-coated steel but as yet these claims are not substantiated by adequate service records. In addition to the metallic coating, iron and steel must be protected by paint if they are to have a long life.

2. **Drains—gutters, valleys, flashing, eaves-troughs, downspouts.** (a) *The same materials* are used as for roof surfaces. It is advisable to use copper, zinc, or other highly resistant sheet metal for places such as valleys or flashing, etc., the replacement of which involves the removal of other material. Galvanized iron or steel is generally used for eaves-troughs and downspouts. Although these materials have a limited life, varying from about four years in an industrial location to perhaps four times as long in a rural section, the life can be very materially increased by painting both the inside and the outside surfaces. The inside surface of downspouts can be painted before they are set in place.

(b) *The life of these metals* is determined primarily by the weight of zinc coating and by the gauge of the sheet. There is now on the market material known as "certified galvanized sheet" which the manufacturers guarantee to have a coating of two ounces of zinc per square foot. This material is better than most of the material on the market. For cornices and other architectural details which require severe bending and crimping during fabrication, a *lightly* coated sheet should be used because heavy coatings will flake. *All galvanized sheet metal should be kept well painted* in order to assure long life in service.

(b) Framework

The amount of structural steel commonly used in the construction of houses is, at present, small. Usually it is not subjected to severely corrosive conditions. If it is well painted before the framework is enclosed, there is no reason to fear the effect of corrosion except under very humid (semi-tropical) conditions. Corrosion of the steel reinforcement in concrete or of pipes embedded in concrete need not be feared if the concrete is well made.

(c) Piping

1. The piping used in the ordinary house may be classed under one of two headings, ferrous (wrought iron and steel) and nonferrous (copper and brass with the prospect of aluminum in the near future). The corrosion resistance of the latter class is, in general, much greater than that of the former, although some rather exceptional cases have been reported in which ferrous pipe was reported as being more satisfactory than brass for certain waters. The internal corrosion of water pipes depends largely on the character of the water supply. Soft waters are more corrosive than hard or moderately hard waters, as the scale-forming material in the latter tends to form protective films. The use of brass and copper water piping, especially for hot-water lines, will no doubt be extended in certain districts. The increasing use of domestic water softeners will probably materially increase the use of brass and copper piping. In certain sections of the country the character of the water is such that the choice of a highly resistant metal, in spite of its higher initial cost, is the only logical one. In other sections, iron or steel pipe lasts so long that the salesmen for the other kinds of piping fare badly indeed. The use on ferrous pipe of a heavy zinc (galvanized) coating, inside and out, is highly desirable because it adds very materially to its life. It must be remembered, however, that in time the zinc will be corroded away by the water. The life of the pipe in heating systems can be very greatly lengthened by treatment of the water, as by the installation of deaerating systems. At present this is too expensive for small private homes, and there is no indication that it need be seriously considered.

2. The use of thin-walled hard-drawn copper pipe for water pipe is receiving considerable attention, and evidently there is much that can be said in favor of it. As this pipe is flexible it can be used when making changes and repairs without removing much of the interior finish, woodwork, plaster, etc. Entirely satisfactory fittings and connections for this pipe, however, have not as yet been developed.

3. Cast iron is used for soil pipe almost exclusively and there is much to be said in its favor. Heavily galvanized steel pipe has recently been proposed for use instead of cast iron, but as yet the service records are not available for judging its value. Its use is not recommended because the zinc coating may be removed in places by rough handling. Cast-iron pipe has the advantage of having considerably thicker walls than steel pipe and also the advantage that the corrosion products tend to form a strong, tightly fitting plug which seals any corroded cavity.

(d) Miscellaneous

1. Metal window casements are now used in houses of moderate cost and they will probably be used more extensively in the future. Iron and steel are the usual materials used. Protection by painting, especially where there is contact with masonry walls and inaccessibility after erection, is, of course, essential to insure satisfactory service. Lead casements (reinforced with steel for strength) possess both beauty and corrosion resistance. The higher cost is not in their favor, considering the average house builder. The same may be said of aluminum for window casements.

2. For weather stripping, zinc is giving great satisfaction with bronze strips for doors, etc., where a stiffer material is needed. Aluminum is coming into wider use, however. All are satisfactory.

3. For finishing hardware (hinges, locks, etc.), brass and bronze are widely used and are recommended for outside work. Brass and chromium-plated steel hardware are giving satisfaction indoors. Plated hardware is not recommended for out-of-doors or where conditions cause severe corrosion.

4. The materials used for screen wire cloth are galvanized iron, copper, bronze and other copper alloys, monel metal, and aluminum. The last mentioned has just been put on the market. For screens which are to be left in place throughout the year, it is found that galvanized iron wire fails by corrosion in a very few years. One of the other metals should be used. If, however, galvanized screens are properly cleaned and painted when this becomes necessary and if they are stored indoors when not needed, their life can be prolonged greatly. A life of fifteen to twenty years is not unusual. The cost of painting and storing makes it advisable to use one of the other metals even in this case. In sulphurous atmospheres, the corrosion of some copper-zinc alloys, the so-called commercial bronze, and of monel metal, may be severe.

4. Protective Coatings. (a) The protective coatings, both metallic and organic, will no doubt be further developed to give greater protection and, therefore, longer life to the underlying metal. Chromium-plated hardware and plumbing fixtures probably will be more widely used. The use of lead-clad metals for underground work may be extended. Improvements may be expected in the continuity and performance of zinc coatings. Cadmium-coated steel will probably be more widely used for outdoor exposures near the seacoast.

(b) All unpainted, exposed metal, such as structural steel and metal roofs, should receive at least three coats of paint and should be repainted at intervals. Red lead is the best priming coat. The paint, as used, should weigh not less than twenty-five pounds per gallon. An iron oxide paint is cheaper than red lead and is a good priming coat paint for metal. Certain ready-mixed paints

containing zinc chromate and basic lead chromate are also coming into use as satisfactory primers for metal. For the finishing or color coats, the usual black, iron oxide (reds and browns), dark greens, and aluminum paints are excellent. Dark colored paints are more durable than white and light tints. Where an enamel finish is desired, the modern synthetic resin finishes are proving satisfactory. Such enamels dry within a few hours and are very durable. They will probably be used to a greater extent in the future, although at present their use in painting houses is very limited.

5. Plaster. (a) A very brief résumé of the history of plastering will assist us in understanding why we have plastering at the present time and the probable trend of future developments.

(b) Some of the first plastering of which there is any record is that in the old Egyptian ruins, where apparently plaster of Paris was used. The Greeks developed lime plaster, and it reached its highest development in the famous stucco and frescoes of the Renaissance period. During this period the painters who did the beautiful frescoes applied the plaster themselves. Great care was taken in its preparation and infinite labor expended in its application. In the United States, until about forty or fifty years ago, most of the plastering was lime plastering. Today, however, most of the plastering is gypsum plastering, due to the fact that gypsum plaster sets up faster than lime plaster, thus meeting the demand for more rapid building construction.

(c) Plaster has been used for many years to improve the appearance of rough walls, such as masonry, because it is very plastic for some time after being mixed and can be manipulated readily. Because of its plastic properties, plaster will continue to be used for some time, even though other surfaces may in time take its place. There are, however, certain properties of plaster which are disadvantageous in the rapid construction and finishing of walls. A plastered wall contains a large amount of water, and it is a well-known fact that the present-day oil paints should not be applied to the plastered surface until the wall is thoroughly dry. It may, therefore, be several months before a wall can be satisfactorily painted. At the present time studies are being conducted on so-called suction primers, and perhaps before long there may be developed a type of paint which can be applied to

a plastered surface without waiting for the plaster to dry out thoroughly.

(d) Another type of finishing which is one of the oldest methods of decorating plastered surfaces is frescoing. Frescoing, however, has always been associated with the work of artists and of recent years little attention has been paid to the possibility of adapting the frescoing process to modern methods. Some of these possibilities are discussed in United States Bureau of Standards *Letter Circular 304*, "Painting Plaster." There appears to be no reason why frescoing can not be used by any competent decorator with a saving in cost, material, and especially in time.

(e) Within recent years there have been developed new types of backings such as gypsum plaster board or gypsum lath as it is sometimes called. Gypsum lath is designed to receive plaster and takes the place of metal lath or wood lath. Still more recently there have appeared on the market fiber boards, and many of these are being used in much the same manner as gypsum lath. Many of these boards have an added advantage because of the heat insulating properties which they possess. There is room for improvement, however, in these boards, so that lime as well as gypsum may be used. There are also, apparently, possibilities for the development of types of metal lath which will form a structural part of a partition or can be attached to outer walls, such as masonry, more satisfactorily than some of the self-furring laths now in use.

(f) A plaster is needed which will adhere better to concrete than do the present-day plasters.

(g) One great disadvantage of plaster is cracking, if the structural framework changes slightly as it does in a wood-frame house. There would, undoubtedly, be a great demand for a plaster which is sufficiently flexible to prevent cracking. Another disadvantage of plaster is the deterioration which occurs when it is subjected to too much moisture.

(h) The above are some of the advantages and disadvantages of plastered walls as we know them today. The development of other materials for finishing walls and ceilings may eventually lead to a great decrease in the use of plaster in the construction of homes. It is possible that new types of wall board may be developed which will be very artistic and which may be used to

good advantage in place of plaster, due to the heat insulating values which they possess. The reason why other wall finishes have not been used more extensively by architects is perhaps due to the fact that people have become accustomed to seeing large, smooth, unbroken surfaces. If tastes change, home owners may eventually prefer a wall which is composed of smaller units. There will then be the possibility of developing a partition tile which will provide a finished surface on both sides of the partition. These will lend themselves to shop fabrication, finished and decorated, requiring only to be assembled in the house. Thus, we may have vesicular partition blocks made with a light-weight aggregate which will have the advantage of lightness and heat insulation and, at the same time, will have a surface which is harder than plaster. The appearance may be made very pleasing. The development of such partition blocks will come more rapidly if the dimensions of rooms and of door and window openings are exact multiples of a module, say four feet, so that no cutting of the blocks is necessary. Blocks similar to those used for partitions, except that only one surface would be finished, would be used to cover the outside walls. It is very easy to develop colored surfaces on such partition blocks; therefore, rooms could be furnished in different colors. Partition blocks of this type might be made from cement and sand and by the sand-lime brick process or by sand and lime by the same process, and there seems to be no limit to the types of aggregate which might be used in making them. There apparently would be a great demand for this type of partition block if just the right kind of block were presented to the architect.

VII. Methods of Fabrication and Erection

1. The methods used for fabricating the aggregates and for their erection in the field depend almost entirely upon the material. For shop fabrication, if a sufficient number of identical objects are to be made, methods are always developed which greatly improve the product and decrease the cost. Until the fabricated aggregates for the small house have been carefully worked out, it is useless to discuss in detail the methods of fabrication and erection. For most building materials the methods of fabrication, so far as can be seen at present, will be those which are now used, modified and

developed for shop fabrication in large quantities. In the case of plastics, the viscous material is molded in dies to the required finished form and subjected to heat, pressure, etc., which solidify the material. Although at present most of the plastic materials are used for small objects such as parts of electrical equipment, telephones, toilet articles, etc., large objects such as wall panels are also produced. It is said that integral doors and window sashes are now available at prices which compare favorably with wood. It is evident that the developments which are now being brought to the attention of the public by several commercial organizations may be expected to have a profound effect upon the shop-fabricated house. The most efficient way to use these materials will only be found by careful study and a redesign of the fabricated aggregate to take full advantage of the possibilities of these new materials. For example, if doors are molded complete from plastics, we may see locks, knockers, and hinges placed in the dies as metal inserts firmly bonded into the door when it is removed from the dies.

2. Welding for the structural portion of a metal house has been discussed previously. For other metal portions of a house, welding is now being used or seriously considered by commercial organizations. The low-pressure cast-iron boiler, now used for heating houses, will be obsolete in a few years if the welded boiler made from sheet steel meets expectations. The pipes used in the heating and plumbing installations we may confidently expect to see replaced by tubes formed from sheet metal and having the longitudinal seam welded. For the low pressures in these installations, thin-wall tubes would be amply strong, but they could not be joined by using screw threads because the walls would be too thin. Welding is the logical method of fabrication, either in the shop or in the field. The pipe lines may, therefore, be completely welded, screw-threaded joints being used only for connecting the bathroom and other fixtures to allow them to be disconnected easily for cleaning and repairs. Any metal which is likely to be used in the small house can be welded. If, at present, this cannot be done satisfactorily and economically, we may expect the development of satisfactory methods in the near future. Some contractors are now prepared to weld pipes of cast iron, steel, brass, aluminum and other metals. To replace threaded fittings such as

elbows, tees, etc., steel fittings suitable for welding are now commercially available. These have a uniform thickness about that of the pipe and the edges are beveled ready for welding. Attention is being given to similar fittings for cast-iron pipe. Whenever it becomes necessary to remove portions of the pipe for repairs or alterations, this can be done by cutting the pipe, perhaps with a cutting torch or a hack-saw.

3. The advantages of welded pipe joints are freedom from leaks, greater strength, and less weight. Welded pipe is more cheaply and efficiently covered with thermal insulation than is pipe having threaded fitting. The house should be standardized as to dimensions. In addition, the number of pipes, fittings and fixtures should be reduced by simplification and standardization so that much of the fabrication could be done in the shop, leaving only a few welds to be made in the field. Under these conditions one contractor who has installed a great deal of welded piping is confident that the cost of heating and plumbing installations would be only one-half the present cost.

4. For those portions of the house or its equipment which must be easily removed for cleaning or repairs, the use of screw threads undoubtedly will continue. The threads that are customarily used to secure hardware, such as door knobs, and equipment, such as gas stoves, are a constant source of annoyance because they frequently become loose. There are now available, commercially, thread-locking methods which give every indication of preventing unscrewing under service conditions. This subject, although of no importance from the cost standpoint, should receive careful consideration when designs are prepared for a shop-fabricated house.

VIII. Floors

1. The upper surface of the structural floor is not usually considered satisfactory as a permanent finish in homes. In low-priced houses the boards forming the structural floor are used for the wearing surface, but often the wearing surface is an added layer of wood, cork, rubber, composition, carpet, etc. It is essential that the wearing surface be suitable for the purpose. For instance, for a laundry the floor surface should be waterproof.

2. In varying degrees depending on the use, the floor surface should:

- (a) Be safe—that is, have a high coefficient of friction, unless it is to be used for dancing.
- (b) Be easily cleaned.
- (c) Be fire-resistant.
- (d) Be waterproof.
- (e) Resist wear and abrasion.
- (f) Be noiseless.
- (g) Transmit heat slowly.
- (h) Transmit little sound.
- (i) Have a pleasing appearance—colors should not fade.

3. The available information on floor surfaces of different kinds is very inadequate and often conflicting. The methods of testing the properties of the surface, particularly the wear, have not been standardized, making the comparison of the results from different laboratories very unsatisfactory.

4. For floors which are subjected to hard wear as in a cellar, or for floors which must be waterproof, as in a bathroom, cement, terrazzo, mosaic, clay tile, and compositions bonded with magnesium oxy-chloride are widely used with satisfactory results. For living-rooms and bedrooms, where appearance is usually considered of importance, wood in narrow strips is very extensively used, usually with the addition of rugs.

5. Cork, rubber and compositions are coming into use to some extent for kitchens, living-rooms, and bedrooms. If these finish floors fit the baseboard closely and are securely cemented to the subfloor, they are quite satisfactory and offer an unlimited opportunity for decorative effects. If these floor surfaces can be made satisfactory without the use of rugs, they would offer decided advantages from the sanitary, labor-saving and economic standpoints. As they come into more general use, we should expect the cost to decrease.

6. The floor surfaces used at present should be improved and ways found to reduce the cost. Definite information should be obtained by laboratory and service tests of all kinds of floor surfaces. The laboratory tests should be standardized, and the minimum requirements which will insure satisfactory service, established.

7. For the future there is reason to believe that we will have floor surfaces made of plastics. These will be continuous sheets which adhere firmly to the structural floor and which are safe, comfortable, and pleasing. The decorative effects will be un-

limited, and rugs will then be a thing of the past. The thickness may be only one-eighth inch, if the subfloor is stiff and continuous. Presumably, a structural floor of sheet metal having welded joints offers great possibilities. Plastic floor surfaces might be applied in the field but are particularly suitable for shop fabrication.

IX. Roofs

1. With the development of roof structures amply strong to support any load which may come upon them, even snow loads, and of methods of making them impervious to water, the need for the sloping roof disappears. The steep house roofs which are such a conspicuous feature of our landscape should be a thing of the past, but more of them are being built every day because the conservative owners do not quite dare to have flat roofs on small houses.

2. If steel and other building materials are used, a flat roof requires less material and less labor than a sloping roof. There are a number of ways in which it may be made water-tight, including noncorrosive sheet metal and felt saturated with coal tar pitch. Designs for small houses having flat roofs are now being published in the periodicals devoted to home building. A satisfactory design should provide protection, especially for children, from falling over the edge. A portion of the roof area should be protected from direct sunlight and from rain by a light roof or by an awning. Access to the roof should be by stairs. At the roof level, there should be a complete enclosure so that furniture, rugs, books, etc., could be moved into the enclosure to protect them from damage by storm. If desired, flowers, trees and vines might be used to obtain pleasing effects. A flat roof of this kind would provide a sheltered environment and privacy and, at the same time, afford exposure to the sun and air, so essential for invalids and even for those in the best of health. It may be used for work, recreation, and social intercourse during waking hours. If used for sleeping quarters, there would be little need for air-conditioning the bedrooms at a considerable cost for equipment and operation.

X. Rooms

1. For the shop fabrication of aggregates, there is a great economic advantage in making them as large as practicable. Prob-

ably the limitations imposed by the railroads and highways will fix a limit to the size. There appears to be no reason why the smaller rooms, such as the kitchen and bath, with their equipment, should not be fabricated complete even to the finish on the walls, then set into place as the building is erected. Aggregates are now available which, when assembled in the house, form one wall of the kitchen and provide the refrigerator, stove, sink, dishwasher, and fireless cooker. There may be a window over the sink and a clock over the window. Equipment of this kind should have no legs or feet which make it difficult to clean the floor under the fixtures. For a shop-fabricated house they should be supported only from the wall. If these fixtures were so designed that the front and sides were continuous, there would be many advantages in using the fronts and sides as portions of the walls of the room up to the height of the working surface. In this way the area of the floor in a room of a given size would be considerably reduced. The cost of the wearing surface would be less, and the labor of keeping the floor clean greatly reduced. Obviously, space under the working surface not needed for other purposes could well be used for storage.

2. In addition to completely fabricated kitchens and bathrooms, the fabricated bedroom should be developed. This might be similar to a stateroom on a steamship but there should be no upper berth. This bedroom might well be somewhat larger than most staterooms. Much of the furniture could be built in, such as seats, wardrobes and beds, having chests of large drawers underneath. The door might slide into the partition. These should be entirely satisfactory for children's bedrooms, guest-rooms and, if somewhat larger than the usual stateroom, for all the members of the family. They would have the advantage that the cost of the house and of furnishing it would be low. If the space used for bedrooms were in this way used most efficiently, the living and other rooms could be larger and more comfortable.

XI. Thermal Insulation

1. In all ages and in all climates man has protected himself from the elements by the use of heat insulation in one form or another. In temperate and cold climates the problem was to keep warm in winter; in tropical climates, to provide protection

from excessive heat. Every inhabited region evolved a typical dwelling which was suitable for the climate and could be built of materials available in that region. As examples of types of dwellings in particular periods and localities, we might mention the log and sod houses of the American settlers and the adobe houses of the North American Southwest, the thatched-roof cottages of rural medieval Europe, and the thick-walled stone or brick houses of the medieval European towns. These types, as well as the hundreds of others that might be mentioned, all provided more or less insulation, but insulating material was not usually added as such, insulating value being obtained by the use of thick walls or by materials such as thatch applied to roofs primarily as protection against rain.

2. In more recent times the practice of installing materials of low heat conductivity for the sole purpose of decreasing heat flow has become increasingly prevalent. At first the materials used were those which nature supplied directly, such as dried leaves or grass, straw, etc., which were employed as filling materials. Some frame houses in New England more than two hundred years ago were insulated with dried eel grass. It was not until the last twenty years, however, that any considerable attention was paid to the production of special materials for house insulation purposes, although a few such materials had already been in use for many years for cold storage insulation.

3. The last two decades have witnessed a very rapid growth of the insulation industry, until today it is one of the large industries of the country. From the point of view of the house user, insulation has been amply proved to be a paying proposition, particularly in the northern parts of the country. Fuel savings from twenty to forty per cent are obtained, depending upon the amount of insulation added and the type of construction. Its use will increase with the increased use of the higher-priced but more efficient fuels such as gas and electricity.

4. Under these conditions the present practice of sheathing a house with one-half inch of insulating material, in many cases, as a substitute for seven-eighths inch wood sheathing, will disappear. Insulation from one to two inches thick will be found necessary from the standpoint of economical heating. The doors and windows must be tight to prevent leakage of air. Double windows are often necessary.

5. In summer, insulation pays no cash dividends at the present time, but it does increase comfort, which to many is worth as much as the winter fuel saving. Future developments in house refrigeration, already on the way, will necessarily call for insulation. It appears likely that the dwelling of the future will be well insulated, of very tight construction, and have controlled ventilation. Under these conditions insulation of walls and roof will afford the maximum percentage of fuel saving. Artificial cooling in hot weather will then be within the reach of even the small-house owner.

6. There are several different types of material, each with its particular method of application, used at present for house insulation purposes. All of them are adequate, providing sufficient insulation is used. Materials, methods, and economies are well described in a recent publication entitled *House Insulation, Its Economies and Application*, issued in 1931 by the National Committee on Wood Utilization of the United States Department of Commerce.

7. It may be remarked that the first cost of insulating materials has been, in general, rather high, due, no doubt, to the tremendous expense of national advertising and selling. The cheapest and otherwise the most useless waste products can be utilized for insulation. The future should bring a material reduction in prices if the prospective home builder is convinced that it pays to insulate, so that insulating materials will sell themselves.

8. In the insulation of frame dwellings, which at present constitute the largest percentage of small homes, the use of filling materials appears to offer the greatest possibilities so far as economy is concerned. Such materials are necessarily much cheaper per unit of insulating value than are fabricated boards or quilts. Filling the air space is also very desirable as a fire stop, providing the material is fire-resistant or reasonably slow burning.

9. The metal house, having hollow walls, is well suited to the use of filling material. To simplify the erection in the field of ready-cut and partially fabricated houses, it may be found desirable to use insulation in the form of quilts or blocks.

10. A subject which is closely related to thermal insulation is shade. It is generally believed that foliage, awnings or overhanging eaves which prevent the sun's rays directly striking the house during the middle of the day, improve the living conditions

in the house. Although much is known about thermal insulation, the effect of shade on the house has, apparently, never been investigated systematically. If this were done, ways might be found at reasonable cost to improve conditions greatly during the summer months.

XII. Sound Insulation

1. In considering sound insulation, structures should be divided into two classes—frame construction and masonry.

2. In frame construction there is very little that can be done to improve the sound insulation. A slight improvement in walls can be obtained by staggered studs, thus separating the two wall surfaces. For floors, the finish floor can be floated on felt such as hair felt, or on soft fiber boards. Either of these will give a slight improvement.

3. In masonry structures more improvement can be made. The plastered surfaces should be furred out from the masonry. There are various devices on the market for this purpose, such as spring clips, metal supports, etc., the use of which is somewhat better than fastening the furring strips directly to the masonry. The finish floor can also be supported on clips or supports.

4. In most cases any attempt at sound insulation may be neutralized by too many openings. Often doors allow so much sound to pass through the cracks that there is little use in using sound insulation.

5. Probably one of the most annoying features in a home is a noisy toilet fixture. This is not a matter of sound insulation, but can be remedied by buying quiet fixtures and by using a reducing valve to prevent excessive water velocities. Also, good judgment should be used in locating the bathroom and the pipes.

6. If windows are opened for ventilation, as is usual in summer, sound insulation in the walls is of little use. It is becoming accepted as a fact that noises arising from the street have a detrimental effect on human beings, even if they are not conscious of them. This is especially true during sleep. A very interesting recent development is a silencer unit which can be either built into the wall or placed in an opened window to fill the opening. By means of power-driven equipment, a strong current of air may be blown into the room to provide ventilation.

The noise is absorbed by devices in the silencer. Although the cost, at present, is rather high, its use in many places, especially in cities, appears justified.

7. When houses have tight walls and adequate insulation, ventilation will necessarily be entirely mechanical. It will then be much easier to prevent noises entering the house.

XIII. Fire Resistance

1. The use of more permanent building material, especially brick, tile, concrete, rammed earth, etc., will, also, increase the resistance to fire. Although the metals will not support combustion, a building having a steel frame may collapse in a fire because the strength is low at high temperature.

2. A small house of any material, built in accordance with the best fire-resistive practice, would burn so slowly that the occupants would have ample time to escape. The need for the future is for a wider use of fire stopping and other precautions, the safety value of which far exceeds their cost. The police power of the community will never be as effective as the insistence of the occupant that a house be reasonably safe from loss of life or property by fire.

3. We may confidently expect considerable progress in the fire-fighting equipment in houses, including the installation of sprinklers near furnaces, in laundries and on stairs leading from the cellar. Education and the efforts of the insurance organizations may also be expected to have a considerable effect.

XIV. Plumbing

1. Developments in plumbing have been gradual, and definite advances are difficult to point out. Probably the greatest advance of recent years in plumbing design was started by the final report of the Subcommittee on Plumbing of the Department of Commerce Building Code Committee, published in 1924 and revised in 1929.⁵ This report demonstrates the feasibility of using three-inch pipe for the main drains of dwellings where a minimum of four inches has usually been required. The report also gives simple designs for plumbing for dwellings which, if followed in

⁵ *Recommended Minimum Requirements for Plumbing*, Washington, U. S. Government Printing Office, 1929.

principle, would do away with complicated venting and reduce the cost.

2. In addition to these advances in plumbing design, the subcommittee recommends that steps be taken to simplify and standardize plumbing equipment, especially dimensions of roughing-in fittings and threads of connecting fittings for plumbing fixtures. Considerable progress has been made in this standardization work under the leadership of the Bureau of Standards' Division of Simplified Practice and Division of Trade Standards and by the American Standards Association. This work is still in progress and when completed will reduce initial costs to some extent and will greatly facilitate and reduce the costs of repairs or replacements.

3. For the shop-fabricated dwelling of a standardized design the plumbing, including each piece of pipe, etc., could be cut in the shop, then assembled in the field by welding.

4. It may be found practicable to assemble lengths of pipe fittings, etc., in the shop by welding—they can then be placed in position in the house, and connected.

XV. Heating

1. **Sources of Energy for Household Use.** (a) The sources of energy available for home use include wood, coal, and oil of various grades, gas, and electricity. The decision as to which of these should be used for each purpose depends mainly upon considerations of convenience and economy. Convenience will usually dictate that electricity, if available, shall be used for lighting and mechanical power, and for minor appliances such as space heaters, laundry irons, and curling irons, all of which are essentially portable. In most circumstances that exist at the present time, economy precludes the use of anything except solid fuel, oil or cheap natural gas for the major task of heating the house in winter. Between these two fields is one in which the use of gas predominates in communities in which it is readily obtainable. This field includes cooking, water heating, the heating of individual rooms quickly or for short periods of time, and such miscellaneous uses as incineration and laundry drying. These relative fields of usefulness are not sharply defined; under circumstances favorable to it, gas finds a place in all of them; under other conditions it

has to meet severe competition from electricity or raw fuel or both, for nearly every purpose for which it is used. This discussion will point out some of the various conditions which determine the relative desirability of gas and of other sources of energy for the more important household uses.

(b) The energy obtainable from a cubic foot of gas, called the "heating value," is usually measured and stated in British thermal units, abbreviated B.t.u. A B.t.u. is the amount of energy which will raise the temperature of one pound of water one degree Fahrenheit. The energy of solid and liquid fuels is likewise usually expressed in B.t.u., but for electrical energy a different unit is employed, the kilowatt hour. One kilowatt hour is 3,412 B.t.u.

(c) The heating value of the gas per cubic foot is frequently or continuously measured by every gas company, and any present or prospective user can readily ascertain the heating value of the local supply. The heating value is an accurate measure of the usefulness of the gas. For the consumer, it makes no difference whether the energy received comes as 400 B.t.u. gas, 1,200 B.t.u. gas, or even 2,500 B.t.u. gas provided the cost of the energy is the same in each case per B.t.u. delivered at the meter. Gas of any heating value can be used for substantially any heating operation for which gas is employed, with the same efficiency in the application of the energy, provided appliances are properly adjusted in each case. The heating value of the gas is thus of equal importance with the rate per thousand cubic feet, and the two should always be considered together as determining the price of gas. In this respect gas differs essentially from the solid and liquid fuels, the value of which is affected more by differences in such properties as volatility, viscosity, ease of ignition, rate of burning, tendency to form clinker and soot, etc., than by differences in heating value. Within rather wide limits the pressure at which gas is supplied is also a matter of indifference to the customer provided only that the pressure is uniform and that appliances are adjusted for the pressure which prevails.

(d) A comparison of the technical processes by which gas is manufactured from the raw fuel and subsequently distributed indicates that gas should have an advantage of at least three or four to one over electricity in the cost of energy delivered. It usually does have the advantage by some such ratio, but the actual

relative cost of energy under local conditions must be ascertained by anyone who is considering the relative economy of the two services. This comparison of the cost of energy is probably most conveniently made on the basis of the cost per million B.t.u. A million B.t.u. is supplied by 293 kilowatt hours or by 1,000 cubic feet of 1,000 B.t.u. natural gas, by 2,000 cubic feet of 500 B.t.u. manufactured gas (the average heating value of the natural gas distributed is probably about 1,100 B.t.u. and that of the manufactured gas about 550 B.t.u.) or by 46 pounds of propane (the usual bottled gas sold for domestic use). About 7.5 gallons of the grades of oil used for cooking and domestic heating or about 77 pounds of average coal, supply one million B.t.u. In the following sections the relative efficiencies with which the energy is used in appliances of different types are discussed.

2. Refrigeration, Cooking, Water Heating. (a) Certain differences in the characteristics of electric and gas appliances, especially the customary methods of using the oven, make accurate comparisons of the cost of cooking by the two means very difficult. The relative "efficiency" of gas as compared with electricity is greatly different for operations on the "cooking top" and in the oven and for operations which require very different lengths of time. The term efficiency is here used in the sense that efficiencies are equal if the same number of B.t.u. must be supplied to accomplish the same useful result. Differences between various models of appliances of each class add greatly to the difficulty of making general comparisons. The statements which follow must be considered as referring to average results to be obtained with electric appliances of good design as compared with gas appliances of equally good design. While they are based upon information from numerous sources, including both general experience and laboratory measurements, they are not to be regarded as of a high degree of accuracy because of the difficulties just stated and may not apply well to a comparison between two individual appliances, either or both of which may differ materially from the average.

(b) In general, less energy must be supplied for the quick operations of frying, heating water, boiling eggs, or warming ready-cooked food on a gas range than on an electric range. For longer processes, the relative efficiency of the electric range increases. If

cooking on the "cooking top" or "hot plate" is continued for several hours, the amount of heat required for the electric range may fall to sixty-five per cent of that for the gas appliance but not much lower. More briefly stated, the gas is used in this case only sixty-five per cent as efficiently as electricity. Gas ovens are usually brought to the cooking temperatures ordinarily used with the expenditure of less energy than is required for electric ovens, but temperature is maintained much less efficiently. For very short operations gas is again more efficient; for slightly longer periods efficiencies are equal and for very long periods electricity is always superior. Equal efficiencies are reached at periods of from five to forty minutes after the cooking temperature is reached, depending upon the appliances compared; twenty to twenty-five minutes is probably a fair average. For very long periods of roasting or baking, gas is used from twenty-five to sixty per cent as efficiently as electricity, with forty per cent as a probable fair average for operations requiring at least three hours. From consideration of the approximate frequency with which the various cooking operations are performed it has been estimated that sixty-five per cent as much energy from electricity as from gas would be used for average cooking if exactly the same dishes were prepared by the same procedures in both cases. However, a lower efficiency than sixty-five per cent for gas as compared with electricity is indicated by the average cost of preparing meals reported from the departments of home economics of various universities and the like, and by a comparison of customers' bills. A relative efficiency of fifty per cent is frequently used as an approximation. How much of the difference between these two figures is represented by the freer use of gas because of its usually greater economy, it is difficult to say.

(c) In comparing electricity with liquid propane stored in cylinders or "bottles," for use in country homes not reached by gas mains, it should be recognized that the greater uniformity of composition and pressure of propane as compared with city gas has made possible the much more efficient design of appliances for its use. If a range of fifty to sixty-five per cent fairly represents the relative efficiency of city gas as compared to electricity, sixty to eighty per cent is to be anticipated from the use of propane.

(d) The thermal efficiencies of commercial gas-fired water

heaters, considering only the period during which the water is being heated, range from sixty-five to eighty-five per cent. The efficiency of the electric water heater during the corresponding period will probably average not more than ninety to ninety-five per cent. (All the heat is delivered to the water but some is lost during the relatively long period usually employed for heating.) During storage, the water is much better insulated in the electric than in the average gas-fired heater, but the important losses in the house piping during distribution from the reservoir are the same for the two systems. It will probably be nearly correct to assume that for the same average hot-water service, sixty-five to seventy per cent as much heat will be required in an electric as in a gas-heated system.

(e) Gas and electricity also compete actively for refrigeration, but on terms that are much less favorable to gas than in the case of cooking and water heating. The thermal efficiency of the gas refrigerator is only about twenty-five per cent that of the average electric refrigerator and the gas refrigerator requires, in addition, one hundred to two hundred gallons of cooling water per day. Nevertheless, in many places, the relative cost of energy from gas and electricity is such that refrigeration with gas is the cheaper.

(f) Of course, economy of operation is often a minor consideration in the choice of appliances, but size, convenience, durability, portability, appearance, first cost, etc., vary so much with individual models that no general statements of value can be made regarding them. Fortunately, most of these factors can be judged by the purchaser much more readily than can relative economy of operation. Disregarding economy, it may be said in general that the major advantages of electrical over gas appliances are portability, independence of ventilation, ease and security of connecting to a new source of supply, and ease of starting and stopping the supply of energy, especially from a distance. Gas possesses the advantage with respect to range of operation (which often results in economy of time), to precision of control (the rate of supply of electrical energy is usually subject to control only in a small number of steps or through a wasteful rheostat), and in many cases to continuity of supply. Automatic timing and control of temperature are available for both when the advantages to be gained warrant their cost.

(g) It is unfortunate that data are unavailable for making satisfactory comparisons of the use of coal and of kerosene and gasoline with gas and electricity for cooking. Where gas is available at \$2.50 per million B.t.u. or less, its greater convenience causes it to displace solid and liquid fuels for this purpose almost completely. More information is needed, however, as to the efficiencies of application of the solid and liquid fuels for cooking to determine at what price the use of gas becomes prohibitive, since the price of energy from these sources in country districts may reach several times their usual cost in cities.

(h) For water heating, coal-fired appliances offer some competition to gas, even in cities. It will probably not be far wrong to assume an efficiency for a coal-fired heater of fifty per cent to compare with the average efficiency of about seventy per cent for the gas-fired heater. Although the cost of operation of the coal-fired heater will in most instances be the lower, the inconvenience of giving attention to it for even a few minutes per day and the dirt attending the storage and handling of coal and the removal of ashes make it much less popular than the gas-fired heater.

(i) The use of electricity, at a special rate, for heating water when the load on the central station is low, during the early morning hours, is coming into use. The temperature of the water in a well-insulated storage tank is brought to the desired maximum and the current is shut off automatically. This supply should be sufficient for the requirements of the household until the next heating period.

3. House Heating. (a) Because of the very different character of the appliances used, a distinction is commonly made between "space heating" and "central house heating." By "space heating" is meant the heating of individual rooms by means of equipment located entirely within those rooms; by "central house heating," the heating of an entire building with steam, hot water or hot air from a single heating plant. For space heating, electricity is ideal except for its cost, primarily because no products of combustion are formed, hence, no chimneys are needed, and no ventilation is necessary and no heat is lost from the room because of the space heater. An electric space heater is one hundred per cent efficient, if net heating values are considered. An unvented gas or oil heater is likewise one hundred per cent efficient.

The efficiencies of space-heating appliances which use gas and discharge their products of combustion through connections to chimneys range from thirty to perhaps eighty per cent, but the latter figure is probably unusual. The convenience and attractive appearance of many of these appliances give them a greater popularity than that of any other form of space heater, however. The discharge into the room of products of combustion from unvented space heaters of any type is usually considered their most undesirable feature. If the appliances are correctly designed and adjusted these products are not dangerous and are probably entirely harmless to health; but there is some difference of opinion on this point. In some weather, especially in poorly insulated houses, the water produced by combustion may condense on windows and even walls. This, and the possibility that incorrect adjustment may produce an unsafe condition, prevent heaters of this type from attaining the very general use their merits would otherwise justify.

(b) Gas-fired central house heating plants, if well built and correctly installed, are highly efficient and extremely satisfactory in other respects. Efficiencies as high as eighty-five per cent are commonly reported, and it is probable that seventy-five per cent may be relied upon as an average over long periods of time with first-class equipment. This is higher than is readily obtainable with oil or coal and probably twenty to thirty-five per cent higher than is actually obtained in average coal-fired furnaces.

(c) Automatic stokers are now available for burning small sizes of anthracite coal in house heating installations. Using these stokers, the heating of a house requires but little more attention than if oil, gas, or electricity is used. Using the completely automatic stokers, the coal is fed from the bin to the fire and the ashes carried from the cellar. Considerable improvement can undoubtedly be made by simplifying the stoker mechanism, making it less subject to derangement and reducing the cost. The controlling apparatus should be improved to prevent the fire going out if the weather is very warm for a day or two. These stokers will increase the use of the small sizes of coal of which there is an abundant supply.

4. Future developments. (a) With little doubt, it is in the field of house heating that the greatest future development of the

gas industry will take place, at least in the cities. The supply of gas to country homes will be discussed later. A discussion of the probable future development of the gas industry may best be based upon a consideration of the cost to the community and the advantages of supplying all the energy used for house heating from a central gas plant.

(b) A modern gas plant can deliver at the meter seventy-five per cent of the energy of the raw fuel used. The energy received by the customer can readily be utilized for house heating with an average efficiency of seventy-five per cent, making an overall efficiency from raw fuel to heat within the rooms of fifty-six per cent, which is almost certainly as great as and probably greater than the average efficiency of utilization of coal for house heating, with the irregular firing, varying depth and condition of fuel and ash in the furnace, fluctuating demand for heat, variable condition of draft, and generally poor control that usually prevail.

(c) In other words, it is reasonably certain that if the raw fuel now distributed to the homes of a city were delivered to a central gas-making plant it would more than suffice to supply all the heat required for those same homes. The operating cost, not including interest on investment, fixed charges and overhead, of distribution of the gas from the central plant to the homes would be only a small fraction of the cost of distributing coal from railroad to basement in small lots by truck. The delivery of coal involves handling at both ends, and usually includes shoveling at least once and sometimes carrying from curb to basement, by manual labor.

(d) There is no fundamental reason why gas-burning equipment should be appreciably more expensive than coal-burning appliances. The regulating devices essential to the proper control of the gas are pretty well offset by the necessary provision of facilities for removing ash, soot, etc., from the coal-burning appliance. The present higher cost of gas-burning equipment is to be ascribed primarily to its small-scale production and its marketing as an article in the luxury class by expensive sales methods.

(e) Against the cost of the manufacturing and distributing plant required for a gas-heated city, is to be balanced the cost of domestic storage facilities for coal and ashes in thousands of different places, and the cost not only of the trucks and other equipment necessary for the distribution of coal and the collection of ashes,

but also a fraction of the cost of streets proportional to the amount of space taken in the streets by coal- and ash-handling vehicles as compared with other traffic. It is not easy to make an accurate comparison of these relative investments, but it seems at least doubtful that there is any advantage in the total investment required when coal is burned directly.

(f) All other factors to be considered are greatly in favor of the use of gas. Probably the greatest advantage is the elimination of smoke outside and of the dust and dirt which result from the handling of coal and ashes inside the buildings. To eliminate only a portion of these nuisances it is customary in many places to burn anthracite, often at a cost at least twice as great as that of bituminous coal. The gas works can use bituminous coal rather better than anthracite; it can use all sizes of coal; and because of its large demand and relatively certain requirements it is in position to buy to the best advantage directly from the mines. The fuel can be delivered in trainload or shipload lots and handled entirely by machinery. The work of firing and of ash disposal are similarly done mechanically.

(g) It would require too much space to make a comparison of heating by gas and oil. It may be sufficient to mention that close competition between coal and oil heating now exists in most cities and that a change of conditions which would make gas as economical as coal would probably also eliminate the direct burning of oil. A review of the subject, therefore, indicates that without any further technical advances a city could be heated at less total cost for everything connected with the enterprise if raw fuel is first converted into gas which is distributed and burned than if the raw fuel is burned directly. In other respects the advantages of gas heating would be enormous. Since this is true, we may confidently predict that a way will be found eventually to bring about universal gas heating in cities, except in congested districts where the direct distribution of steam is more economical. Electricity is eliminated as a serious competitor of gas for this purpose by the difference in the relative efficiency of conversion from raw fuel, by the relative investment required in manufacturing plant and distributing system, and by the relative ease with which a gas plant can take care of peak loads, all of which combine to make an unsurmountable difference in cost.

(h) The problem of inaugurating the general use of gas for heating is one of economic arrangements, rather than of technology. A gas company cannot finance the installation of a plant large enough to manufacture and distribute enough gas to meet a city's total requirement for heat unless it is assured of earning "fixed charges" and a profit on the investment. If the investment were made and a return paid by only the customers who used the gas before the change, the rate would have to be prohibitive. If all citizens would at once use gas for all purposes, the change-over could be made economically, but existing investments in facilities for storing and burning coal and oil preclude this. The final result will have to be reached by gradual enlargement and replacement, which will be a very costly process since the development of a big plant and particularly of a distributing system in this manner is several times as expensive as the construction of a single plant of adequate capacity at one time.

(i) Although there has been comparatively little discussion of the mine-mouth production of gas and its transmission to cities through pipes, it is worth noting, in connection with the extensive public discussion of a similar project for the supplying of electricity, that both production and distribution are less affected by conditions unfavorable to the project in the case of gas than in that of electricity. A given amount of energy can be transmitted at much less cost as gas than as electricity, with relatively little loss of energy during transmission, and with a large advantage in "load factor." The production of gas is also much less dependent than that of electricity upon the availability of large quantities of water, which seems to be the greatest factor in limiting the generation of electric power at the mine mouth.

(j) One of the most important developments in the use of gas and the one which is taking place most rapidly at the present time is the distribution of fuel gases, liquefied under pressure, for use in country homes and in towns too small to support a plant for manufacturing gas. The gas supplied for this purpose is mainly the hydrocarbon, propane. Enough propane and related materials only slightly less desirable are said to be available from gas and oil wells and oil refineries to supply the needs for cooking, water heating, and illumination of every home in the country now beyond the reach of city gas mains. This fuel

gives service as satisfactory in all respects, except cost and the trouble of periodically renewing the supply, as does the best city supply. Its cost is still high, but may be expected to be materially reduced as the demand increases and the delivery of the supply is simplified by the close grouping of regular customers along routes which receive periodic visits from the supply truck. It should be emphasized that these gases bring to country homes not only the possibility of cooking and water heating by gas, but, where electricity is not available, automatic refrigeration and good illumination as well.

XVI. Air Conditioning

1. Under the subject of air conditioning should be included control of the temperature and humidity, circulation of the air, and elimination of dust and harmful gases. It is often applied only to methods of cooling the air and controlling the humidity.

2. Although air conditioning has been used extensively in industrial plants to obtain the desired results in manufacturing processes and to some extent in office buildings, it has not been used for small moderate-priced houses because of the cost of the equipment and the cost of operation. It is now being considered for houses, and equipment is being developed to meet this need. The extent to which it will be used in the future cannot be predicted at this time.

3. Although many investigations have been made of the effect of air conditions upon the human organism, sufficient information is not as yet available to determine the best conditions for comfort and for mental and physical efficiency. We may find, for example, that a considerably lower temperature than is maintained in the average American home and considerably greater variation in the temperature than is allowed by modern temperature control apparatus are highly beneficial, stimulating human activity and making the occupants more resistant to the common cold and other respiratory ills.

4. In most houses during the winter the air is above the temperature of the walls. Investigation might show that if this condition were reversed, the walls being at a considerably higher temperature than the air, the occupants would be perfectly comfortable if the air temperature were only fifty degrees Fahren-

heit. The explanation offered is that comfort depends greatly upon radiant heat. If the walls were warm and the air cool, a person might have the exhilaration experienced when out-of-doors in frosty weather when the sun is shining brightly. The Fuel Research Board of Great Britain⁶ has made investigations of this subject. More work is needed to determine the possibilities.

5. The low humidity of the air in American homes has been condemned as detrimental to the membranes of the nose and throat and as a cause of rapid deterioration of the furniture in the house. It may be that methods should be developed for maintaining a humidity throughout the year which is satisfactory. There is no doubt that the low humidity in most houses during the winter is detrimental to wood furniture. Its effect upon the comfort of the occupants is not very noticeable. There is no conclusive evidence that it is detrimental to health. The maximum increase in humidity which can be effected without having moisture condense on the windows and walls is about twenty per cent. If it is found desirable the humidity could be increased up to this amount. If an air temperature of seventy degrees Fahrenheit is considered comfortable under present conditions, a temperature of sixty-eight degrees would be comfortable if the humidity were increased twenty per cent. The fuel required to evaporate the water for humidifying would greatly exceed that required to increase the air temperature from sixty-eight to seventy degrees so that no saving in fuel would result. At present there is no practical way to increase appreciably the humidity in winter except in some heating equipments which are not widely used.

6. It may be found that there is a sufficient benefit from circulating the air in the house to justify mechanical ventilation in the future. The intake for outside air could then be on the roof or in some other favorable location to reduce the amount of dust and dirt. Much of this material could be removed from the air before it enters the house. The noise entering the house could also be greatly reduced if the walls and windows were insulated and, if necessary, a silencer provided in the air intake.

7. If small houses are designed and built which are well insulated and tight so that they are economically heated in winter,

⁶ Fishenden, M., and Willgress, R. E., "The Heating of Rooms," *Technical Paper No. 12* (Department of Scientific and Industrial Research, Fuel Research Board), London, His Majesty's Stationery Office, 1925, p. 19.

they will be cooler in summer than houses which do not have these advantages.

8. The temperature of the air in a house can be lowered in summer without refrigerating equipment, by mechanical ventilation—drawing the outside air from the coolest spot near the house. Equipment is now available using a fan in the heating system for circulating the warm air through the house. If the fan is operated in warm weather, cool air from the cellar is circulated through the house, lowering the temperature in the living-room and increasing the evaporation from the skin.

9. Although it is not practicable at present to use refrigeration to cool the entire house, it is economically feasible to cool one room during the summer, preferably a room on the second floor which could be used as a living-room and sleeping room. Equipment is now available for a room of moderate size for cooling by refrigeration in summer and heating, ventilating and humidifying in winter at a cost of less than \$1,000. This equipment may be either self-contained in a cabinet or installed in a closet or in the cellar. As the demand for this equipment increases, we may expect the cost to decrease. During the summer the current consumption is about 15 kilowatt hours per day or about 1,200 kilowatt hours for the summer season for conditions similar to those in New York City.

10. These installations, especially in the hotter, more congested districts of a city, would be a great benefit to the occupants. They would provide a place of refuge for women and children during the day, for wage earners in the evening, and insure refreshing sleep at night, thus contributing greatly to the efficiency of the worker.

11. It is not generally realized that a sick-room can be cooled in hot weather by an inexpensive unit holding about three hundred pounds of ice and provided with an electrically driven blower to circulate the air. This would cool the air in a small room for about ten hours during the heat of the day.

12. The use of a refrigerating machine as a heat pump in winter to heat a house and as a refrigerating machine in summer to cool it has received considerable study and the equipment is now available.

13. The development of complete air-conditioning plants for

homes, whether as combined heating, cooling and humidifying units, or as separate units, deserves extensive investigation.

14. Cooling installations using the absorption of refrigerants by silica-gel heated by gas have been tried out in residences, and there are also mechanical cooling systems commercially available for higher-priced homes.

15. All the data so far available indicate that at present these systems have too high first cost and too large operating costs to be considered for houses in the lower price ranges. Further technological development may be expected to make lower-priced equipment available in the near future but there is no indication at present that it will be economically available to everyone.

16. One application of mechanical ventilation which has been used, apparently with beneficial results, is an exhaust fan in a short stack on the roof. There are about two feet between the ceiling of the upper story and the roof. Air is drawn through openings under the eaves and between the ceiling and roof and discharged through the stack. Operation of the fan for a few hours in the evening makes the bedrooms in the upper story much more comfortable in hot weather.

XVII. Refrigerators

1. The subject of refrigerators for food has received much consideration during the past ten years, and great progress has been made. No radical changes in the construction or method of cooling refrigerators seem probable.

XVIII. Illumination

1. With electricity almost universally available and the present information on methods and equipment to obtain satisfactory hygienic and aesthetic illumination, it does not appear probable that radically new methods of lighting will be developed in the near future.

2. The benefits to be obtained from ultra-violet light are not secured except with lamps which, under test, meet the requirements. The advice of a physician is required if detrimental effects are to be avoided.

3. Although window glass which transmits more ultra-violet rays than ordinary window glass is manufactured, there is little advantage in using it in house windows. To have an appreciable

effect upon health, a solarium is required and the patient's entire body must be exposed. In most industrial communities the amount of ultra-violet light reaching the ground is greatly reduced by smoke and other impurities in the atmosphere. Much valuable information on this subject will be found in W. W. Coblentz's pamphlet "Ultra-Violet Transmitting Glasses," reprinted from the *Journal of the American Medical Association*, September 20, 1930.

XIX. Safety

1. Safety in the small house depends, first, upon the construction arrangement; second, upon the occupants.

2. Safe construction depends upon a designer who knows the best modern practice for insuring a safe house and sees that it is carried out during the erection of the structure. He is, of course, limited by the cost and type of construction called for by the specifications but has personally the moral responsibility for the safety of the house when completed. Too often, especially in speculative building, safety features, such as fire stopping in frame houses, is neglected, and it is impossible when the house is completed to detect the poor workmanship. Inspection during construction by representatives of the owner would overcome this difficulty but is usually considered too expensive.

3. Much may be accomplished by organizations of contractors and workmen which guarantee or "certify" that a house complies with definite safety requirements. If contractors and workmen who did not live up to this moral and legal obligation were severely disciplined by their own organizations, the public would be protected to a great extent.

4. Everyone realizes that much depends upon the owner who must be willing to pay a reasonable increase in cost to obtain a safe house. Education and public opinion are powerful influences which will gradually give us safer homes and decrease property losses and human suffering.

5. Given a house which, for the limitations in cost, etc., is as safe as we know how to make it, the occupants must be eternally vigilant to prevent fires by cleaning up rubbish, making repairs promptly in the heating, cooking and electrical equipment, and exercising care to prevent falling down stairs, falling out of windows, causing fires, explosions, electric shocks, and asphyxiation.

6. When safety precautions are enforced in the home to the extent that they are in many industrial plants, we may expect a great decrease in household accidents. Most persons are woefully ignorant of many risks which they encounter in the household. United States Bureau of Standards *Circular No. 397* "Safety for the Household" discusses this subject in readily understandable language.⁷ When children are educated as thoroughly in the observance of safety precautions as they are in many less important matters, the number of accidents will decrease rapidly. Too often, accidents are considered as acts of God and beyond human control.

7. Although less important than the safety of persons, the safety of property in the house should not be neglected. The methods of preventing the loss of property by fire are the same as those for protecting the occupants. The use of fasteners on windows and cylinder locks on doors may be all the protection that is economically practicable but there is reason to believe that the resistance which they offer to forceable entry is very much less than is generally supposed. Undoubtedly they do prevent the entry of unskilled persons. The value of automatic alarms and of the small dog have never been conclusively determined. Burglar-resisting chests are available commercially which may be installed in the house wall for the protection of money, jewels, and other valuables. If they are hidden, as behind a picture, and the location kept secret, additional protection is provided.

8. For the shop-fabricated house it should be important to provide adequate protection for property by using efficient fastenings for the windows and doors—possibly cylinder locks on all inside doors including closets. Alarms and wall chests and other devices should be provided for an additional charge if investigation shows that the expense is justified.

XX. Waste Disposal

1. The disposal of household waste is a serious problem. Collection and disposal by the city is cumbersome and expensive. Although ways for disposing of sewage may be improved in the future, this problem is much more satisfactorily solved at present

⁷ See also "Housing and the Community—Home Repair and Remodeling," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. VIII, Pt. I.

than the disposal of garbage and trash. Incinerators which are part of the heating plant have been used to some extent but are not usually found in small houses. Gas-fired incinerators for houses are available. If a stove or kitchen range is in use, garbage may be deposited in devices made for the purpose and placed in the stovepipe leading to the chimney. The products of combustion dry and carbonize the waste, the odors passing up the chimney. The residue may then be burned in the stove. Trash is sometimes burned on the premises in an outdoor metal container but is unsightly and, in more or less closely built-up communities, these fires constitute an added fire hazard as well as causing, because of the smoke, discomfort and, in some instances, illness to other householders. That this problem is receiving serious consideration is shown by the fact that experiments are now being made with a power-driven appliance to be attached to the kitchen sink which will grind garbage, bones, and even tin cans into a fine powder which can be flushed down the drain. A number of objections will have to be satisfactorily overcome before this device is widely used. The whole subject of waste disposal for the small house, especially the isolated house, should receive careful study and investigation.

2. We may expect the development of much more efficient, sanitary, and less hazardous methods of disposing of garbage and trash which will relieve the municipalities of this financial burden and householders of the annoyance.

XXI. Sanitation

1. The students of home economics have clearly pointed out the need for walls, floors, etc., inside the house which can easily be maintained in a sanitary condition. These surfaces must be smooth, continuous, and without reentrant angles unless the fillets have a large radius. The finish must withstand, without deterioration or becoming unsightly, cleaning with soap and water. Cracks and other discontinuities in the surface harbor vermin, which are not only revolting but unsanitary. Rats and mice can be kept out of a building if it is properly constructed and maintained. The additional cost is justified by preventing the spoiling of foods, etc., by these destructive pests. In addition, the spread of disease by the rodents would be controlled.

XXII. Labor-Saving Equipment

1. A great deal of attention has been given to the development of labor-saving equipment for the household during the past twenty years. Although few dwellings are, at present, equipped with all the labor-saving devices, their use will increase as they become available at lower prices. At present, there are mechanical devices for performing almost all housekeeping operations. They have received such a warm welcome from the housekeeper that it is becoming a social stigma not to have a vacuum cleaner, a washing machine, a mangle, an electric flatiron, a gas or electric range, a mechanical refrigerator and a dishwasher. As the number of these devices appears to be reasonably adequate for our present needs, we should expect, in the future, to see developments in making existing devices more foolproof, more durable and efficient, and in requiring less attention for oiling, cleaning, and repairing, than in increasing to any extent the number and kinds of these devices.

2. Labor-saving devices to be used by the workmen constructing the house have also received considerable attention and are now available commercially. When being used, most of these devices are held in the hand of the workman, but stands are provided for some of them for temporarily securing the device to a bench or other convenient support. Some of these devices are:

(a) Electric hand saws for cutting wood, stone, marble, tile, etc. Some have stands which can be used to attach the saw to a workbench, etc.

(b) Electric hole saws for cutting holes in tanks, soil pipe, bathtubs, sinks, furnaces, and radiators. They can be used on any material which can be cut with a hack-saw.

(c) Electric nailers for floors, having a magazine holding one hundred and fifty nails.

(d) Electric hammers for star drills, chisels, etc.

(e) Electric machines for installing weather strips around doors and windows.

(f) Electric planes used for fitting doors, windows, etc. It is claimed that with one of these planes a workman will do about ten times the work he would do with a hand-driven plane.

(g) Electric mortiser which, in one minute, will cut the mortise in a door to receive the lock.

(h) Electric shaper for rounding the corners of drawers, doors, etc., in cabinets.

(i) Electric stair set for cutting the stringer by an adjustable templet to receive the treads and risers.

- (j) Electric screw-drivers, some of which release the screw automatically when it is screwed in place.
- (k) Electric drills.
- (l) Electric grinders.
- (m) Electric polishers for cleaning, waxing, and polishing.
- (n) Plastering machines, air-driven, which continuously mix and apply plaster.
- (o) Electric pumps which discharge through a hose, for draining cellars, excavations, etc.
- (p) Workbenches designed for use in the field.
- (q) Toolboxes of steel, some lined with wood, having compartments for tools, screws, and other hardware.
- (r) Chalk lines wound on a reel in a metal case.

3. It is apparent that these devices are primarily intended to expedite work in the field. The ones which are power-driven can only be used where electric current or compressed air is available. If the house is fabricated in the shop, there should be no necessity for any cutting and fitting in the field; therefore, we may expect the usefulness of these devices in the construction of small houses to decrease in the future.

XXIII. Smoke Elimination

1. It is now generally recognized that smoke is detrimental to health and greatly increases the cost and labor of maintaining the home in a satisfactory condition. Most people believe that most of the smoke in the community, which increases laundry and cleaning bills and causes rapid deterioration of houses and their contents, is produced by industrial plants. Often the small householder is also a serious offender. He is seldom troubled by the smoke from his own chimney but complains of the smoke produced by his neighbors. The civic and social consciousness of those who burn coal must be aroused to the point where they will make a determined effort to operate their heating plants so that no smoke will be produced. This subject has received much attention in recent years and information is now available for eliminating this nuisance. It needs only to be applied to accomplish results.

2. For the future we may confidently expect that improvements in house heating equipment and the instructions supplied by the manufacturer will effect a great improvement. The use of gas and electricity for house heating will eliminate smoke without any effort on the part of the householder.

XXIV. Research

1. If the satisfactory small house at much less cost is to become available in the future, careful research work using both scientific and technical experts and equipment must be employed. Lack of satisfactory progress in the past has been due to attempts to improve details without sufficient consideration of the broader aspects of the problem. Usually these attempts have been undertaken by industrial organizations without an adequate scientific or technical staff, progress being made by trial and error.

2. A satisfactory solution is not to be expected from an industrial organization interested in only one kind of building material. It is desirable that an organization provided with ample funds and having no affiliations with the manufacturers of materials or with the construction trades attempt to provide small houses at low cost.

3. The materials-testing laboratories of the larger technical schools, particularly state universities, now carry on investigations which have practical applications. Their attention might well be directed toward the small house. A better problem could not be found to bring out the best in these laboratories, nor one which would be of greater benefit to the people who are supporting them. Because the small house which is satisfactory in one part of the country may be unsuitable in another, this problem should be studied by many laboratories in widely separated parts of the country. The solutions will then meet local requirements. Because education is essential in getting the people to build the house when it shall have been developed, tests and demonstrations in many laboratories where visitors will see the results and become enthusiastic, are almost necessary. If the present generation is too conservative to adopt the new houses, the next generation now studying in the universities will do so, as they will become familiar with this work carried on in their own institutions. Who can doubt that the enormous increase in the use of concrete has, to a great extent, been due to the investigation on concrete in almost every school laboratory where students came into almost daily contact with the specimens and heard the results of the tests discussed at all hours of the day and night.

XXV. Certification and Inspection

1. Legal requirements for houses are necessarily restricted to those which will insure a minimum of safety and sanitation. They cannot, even if enforced, result in housing which will be satis-

factory from the broader viewpoints of health, education, and sociology, including delinquency. Better houses will be provided only when the people, through education, demand better houses.

2. The inspection of a house and certification that it meets definite requirements which are desirable, other than those necessary for minimum safety and sanitation, does not appear to be a function of government. Some manufacturers of building material, in cooperation with contractors and the building trades, are beginning to certify certain portions of a building, such as the brickwork or the plumbing, but this is seldom extended to a guarantee that the work complies with the definite specifications or requirements. Whether these will give the owner satisfactory assurance that the work meets the requirements, will depend upon whether these organizations inspect the work and discipline those who fail.

3. It will, in any event, require years to build up the confidence of the public in this method of inspection and certification and to extend it to the entire house.

4. If the owner dealt only with a well-established organization which turned over the house ready for occupancy and guaranteed it for say twenty-five years, the results would be much better. If the purchase price included a certificate from an independent inspection service specializing in house construction, there should be little trouble due to unsatisfactory houses. Under this plan, the inspection service would, to a great extent, be independent of any one contractor. Its responsibility to the public and the necessity for maintaining its reputation would force it to guard the owner's interests.

5. The Consumers' Research, 340 West 23rd Street, New York City, is so organized that its work is solely in the interests of the consumers who support it. Although, at present, it is not in a position to inspect and certify complete houses, some organization of this kind could exert a profound effect upon housing in this country.

6. Before such an inspection service would function at all satisfactorily the specifications must be worked out and widely accepted.

XXVI. Summary

1. The Committee on Technological Developments believes that at present most small houses do not meet reasonable requirements for cost, safety, and comfort.

2. Materials and methods of construction are now available for building a small house which will meet reasonable requirements but the cost is so great that they are not available to families having moderate incomes.

3. The building of small houses has not made the progress found in other industries supplying the needs of householders, such as food, clothing, fuel, transportation, amusement, literature and art.

4. The building of satisfactory small houses at much lower cost will result in great benefit to the people of this country. Great reduction in cost will be obtained only when houses fabricated in accordance with the following recommendations are very generally used so that the benefits to be derived from mass production may be obtained.

5. The committee recommends that small houses be built by large organizations which:

(a) Develop designs by laboratory and service tests under the direction of a competent technical staff.

(b) Fabricate the aggregates in a well-equipped shop under adequate supervision, ship them to the building site, assemble the house ready for occupancy and guarantee it for a term of years.⁸

6. The committee further recommends that:

(a) The cost be reduced greatly by increasing the amount of shop fabrication and decreasing the amount of fabrication on the building site. If found practicable the shop-fabricated aggregates should be portions of the wall, floor, roof, etc.

(b) Shop-fabricated aggregates be so designed that a number of houses having different sizes and arrangements of rooms may be assembled from them.

(c) Shop-fabricated aggregates be so light and strong that they may be distributed economically over a wide radius. The following is a list of existing building materials, in the order of their apparent suitability for the shop fabrication of large aggregates, beginning with the least suitable:

- (1) Earth.
- (2) Stone.
- (3) Clay products, brick, tile, etc.
- (4) Concrete.
- (5) Wood.
- (6) Plastics.
- (7) Metal.

⁸ The names of manufacturers who follow the above recommendation either wholly or in part for houses and equipment may be found in Sweet's Architectural Catalogue. Published annually by F. W. Dodge Corporation, New York.

(d) The combination of rammed earth walls and partitions fabricated on the building site with shop-fabricated aggregates for floors, roofs, etc., be used to obtain satisfactory small houses at the minimum cost.

(e) The rammed earth walls be erected under competent supervision using power-driven equipment developed for the purpose.

(f) Welding be used for both shop and field fabrication of metal aggregates such as the framework, floors, walls, roofs, pipes for plumbing and heating equipment.

(g) The cellar be as small as possible.

(h) The roof be flat and equipped for living and sleeping quarters.

(i) The house be insulated and the doors and windows be weather-stripped.

(j) The house be fire resistant.

(k) Coal, using automatic stokers, gas, and electricity be used for heating and cooking, depending upon which is the most economical.

(l) Glass transmitting a large proportion of ultra-violet light be used only in a solarium.

(m) Small houses be inspected and certified if they meet definite specification by an independent organization representing only the consumer.

7. The committee believes that more research and development are necessary before air conditioning is practicable for the small low-priced house.

8. The committee believes that more research and development are necessary to provide satisfactory methods of disposing of garbage and trash.

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CHAPTER VII

LEGISLATION AND ADMINISTRATION

I. Legislation Recommended by Conference Committees ¹

If legislation is essential to better housing, it is important that it should not be overemphasized to the neglect of other aids directed toward the same objective. The resort to legislative action to promote all sorts of improvement projects all too frequently distracts public attention from the possibilities of civic and economic control. State legislatures annually turn out thousands of laws. During 1931 alone about 15,000 laws were placed on the statute books of 44 states. Possibly many such statutes were repealers, while many more were in the form of appropriation bills, but even making these allowances, it is apparent that control by statute is a popular pastime. That it is often an irritating pastime is evident in the resistance set up against adequate enforcement. That many laws are poorly drafted, contain weak clauses, create hardships, fail to procure the results expected, are difficult to enforce, and ultimately lead to abuses which have a pernicious effect on orderly government is all too well known. Fortunately, the Conference committees consider law more in terms of standards of good practice, permissive rather than restrictive in character. Where the latter are recommended they are a logical form of control to check faulty practices inimical to public good. Much of the recommended law may be correlated under a few general headings such as city planning and zoning; building, housing and sanitation; taxation; financing; and the structure and operation

¹ Committee assignment. This committee, as one of the correlating committees of the Conference, was asked to:

1. Survey the reports of other Conference committees to:

(a) Note, coordinate, and determine the adequacy of recommendations for legislation;

(b) Suggest additional legislation, should the Conference committees omit any important problems requiring legal control;

(c) Present on its own initiative, if necessary, added legislation beyond the sphere of interest of such committees.

2. Recommend a program for securing the adoption and enforcement of legislation approved by the Conference committees. This would include suggestions to improve the drafting, promotion and enforcement of such legislation.

of government as it affects home building and home ownership, with some miscellaneous recommendations not subject to classification.

City planning as a basic community need, directed by qualified official planning commissions, is seen by many committees as an all-inclusive, essential program, involving careful analysis of the physical needs of the community with street layouts, open spaces, plot subdivisions on the basis of the neighborhood unit, slum clearance with the right of eminent domain, replanning of blighted areas, and zoning. As adjuncts thereto and likewise essential for affected areas are regional planning and, for lesser governmental units, rural planning.

Building codes are recognized as a fundamental necessity to assure security in construction and occupancy, and where committees have recommended them, it has been stressed that they be sufficiently comprehensive in character to reduce safety hazards to a minimum. Furthermore, they should be adequately enforced by technically qualified personnel, and supplemented by plumbing and housing codes and inspection of electrical and heating installations so as to provide for safe and hygienic occupancy. Sanitary control is recommended also for tourist, labor and migrant-workers' camps and roadside stands.

Recognition of the effect of the structure and operation of municipal government on good housing is reflected in the demand for the elimination of overlapping bureaus, greater efficiency and honesty of administration, more consideration for the home owner and the rent payer in the promotion of public improvement programs and a definite program to meet the cost of government through tax levies on other ratables besides real estate. The need is emphasized for more equitable laws relating to assessments for tax purposes, to tax sales and redemption rights, to the deferring of taxes on new construction until completion, and to the transfer of some of the cost of government from real estate to incomes.

The fourth group of correlated recommendations deals with financing problems, particularly with mortgages. Thus, some committees call for better supervision over second mortgage lending agencies, the general adoption of a uniform mortgage act by the various states, the creation of Federal regional mortgage discount

banks,² and other aids to stabilize mortgage investments. Other committees recommend the authorization of limited dividend housing companies after the plan of the New York State law of 1926, and subsequent amendments.

There are additional suggestions for legislation of a miscellaneous nature and of different degrees of importance. Typical examples are laws providing for smoke and noise abatement, control over billboard advertising, roadside beautification, more control over illegal agreements, railroad rates and switching policies to encourage decentralization of industry, licensing of real estate brokers, regulation of advertising, and branding of goods and materials to prevent misrepresentation with the attendant shoddy construction and equipment.

Dissatisfaction with some existing laws is frequently expressed and recommendations are made that they be revised. Thus, building codes are severely criticized, not only because they are often written in too much detail but because their standards are often obsolete. There is a demand for more uniformity of codes with periodic revision; for zoning regulations better adapted to local conditions so as not to interfere with improvement projects; for change in the method of levying taxes so as to remove inequalities and to reduce overburdened assessments for public improvements; for revision of usury laws to eliminate the handicaps they are now placing on mortgage loans. Some committees recommend laws which other committees strenuously oppose; one wishes government competition in housing; another cries anathema on such a proposition; one asks for tax exemption in the interest of lower housing costs; another committee objects to tax exemption because it increases the tax burden for the general population. In the main, however, such differences of opinion as to the reliability of existing or proposed legislation are few.

² A resolution was adopted by the Conference, endorsing the suggestion of President Hoover for the establishment of a system of home loan banks. The President's statement appears in "Home Finance and Taxation," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. II, and the resolution appears in Chapter IV of this volume. This suggestion culminated in the enactment and approval on July 22, 1932, of the Federal Home Loan Bank Act, providing for the discounting of first mortgage paper by financial institutions which are members of the home loan bank system. (Public Act No. 304, Seventy-second Congress.)

Other-Than-Legal Control

Perhaps the most interesting and hopeful type of control frequently recommended is that which, for lack of a better name, may be called "other-than-legal," such as a coordination and agreement between utilities and municipalities on a work plan and program; deed or other documentary covenants as extra protection where zoning is adopted and as a safeguard where zoning is not in force; the purchase of sites by business men and the erection of structures as a business proposition in reclaiming blighted areas, instead of a program for government housing; standard forms of contract; "grade-marking" and "trade-marking" as a safety measure to assure against substandard materials; inspection bureaus maintained by business corporations to insure quality in construction and stability to mortgage loans; credit bureaus as a means for curtailing bad debts now passed on to the ultimate owner; citizens' associations to create local sentiment for the correction of evils, or to function as building congresses to serve local construction groups, or to furnish the public with information on problems pertaining to the leasing, purchase, management and supply of homes, or to carry on all the activities of a well-organized housing association.

These are only a few of the many forms of other-than-legal control which appear in committee reports, but they illustrate a trend away from the idea that progress in the field of housing is solely dependent upon the quantity and adequacy of legislation. Many Conference committees apparently believe that group control, based upon adequate information and educated selective purchasing in some cases and upon economic pressure in others, will bring results, and should be resorted to with greater frequency in any program directed toward housing betterment.

Abstract of Recommendations

An analysis of the reports of the various Conference committees shows that practically every factor bearing on the home is considered from the preparation of raw land for use, through the construction of dwellings and including their occupancy and on to their ultimate demolition. Economic and social factors and the influence of governmental administration are also considered, as are, likewise, those contractual relationships which are inherent in the purchase, financing, and leasing of homes.

Considering this wide scope of treatment, it would naturally be supposed that the Conference committees would recommend much legislation intended either to fix standards or to control contractual relations. However, the variety and volume of law suggested by these committees is not great.

It may seem, however, from the following statement of legislative suggestions compiled from the committee reports, that the volume of legislation recommended is large, but there is much duplication of recommendations, and many forms of other-than-legal control offered as a substitute for law.

In presenting the following suggestions for legislation, this correlating committee is acting solely as a reporter. Moreover, it does not attempt to cite supporting evidence. For such evidence, the reader is referred to the original reports of the Conference committees. It will be seen that certain laws of fundamental importance are repeatedly recommended by committees working separately but reporting on interrelated matters. This repetition is significant and emphasizes the importance of such recommendations.

Legislative Suggestions ³

Committee No. 1—Types of Dwellings.⁴ No recommendations for legislation are made. The text refers to the value of city planning, plot subdivision, the neighborhood unit, legal restriction of lot overcrowding, zoning, and sets up standards for sanitary occupancy which, when attained in most communities for older houses, has been through the compulsion of legislation.

Committee No. 2—Fundamental Equipment.⁵ This committee recommends ordinances to regulate electrical installations, as well as comprehensive inspection or certification of heating systems. Both the "Hoover Code" setting minimum requirements for plumbing installation, and the National Electrical Code for electrical installation are endorsed.

³ The committee numbers appearing in this section of the report are the numbers assigned for administrative purposes during the preliminary work of the Conference. The reports of the committees, as published in final form in the first ten volumes of this series, have been grouped with reference to the homogeneity of the subject matter and the footnote references following the committee titles in this section indicate the volume, etc., of the series in which the particular report will be found.

⁴ Home Ownership, Income and Types of Dwellings, Vol. IV, Pt. III.

⁵ House Design, Construction and Equipment, Vol. V, Pt. III.

Committee No. 3—Kitchens and Other Work Centers.⁶ No recommendations for legislation are made.

Committee No. 4—Utilities for Houses.⁷ No specific legislative recommendations are made. Proposals are offered for sound practice in the use and extension of utilities. It is recommended that, wherever possible, there should be coordination between the utility companies and the local government in the development of new areas, and that certain regulations operative in many communities regarding the replacement of highways after excavation are too stringent. Good engineering practice should dictate these regulations.

Committee No. 5—Subdivision Layout.⁸ The following legislative recommendations are made: Adopt zoning regulations; create a planning commission and authorize it to prepare a master plan and provide for administrative control over subdivision development; incorporate protective restrictions in deeds for a term of years with automatic renewal except by written agreement of the owners of two-thirds or three-fourths of all the properties in the subdivision, and where zoning is in force, carefully coordinate such restrictions with zoning regulations; apply control when planning commissions lack power to prevent unsatisfactory subdivision plans, by restraints such as the adoption by city council of an official map of city streets, existing and proposed, to which subdividers must conform; refuse to extend recording privileges for nonconforming plats, thus requiring preparation of a conforming plat or resort to the disadvantages of description by "metes and bounds;" refuse to open legally, or place on city plan, streets in faulty subdivisions; refuse municipal service for maintaining or cleaning the streets; refuse to grant building permits for structures not abutting on public streets; refuse to make utility service extensions.

Committee No. 6—Business and Housing.⁹ By a series of resolutions this committee recommends state and municipal legislation for planning, zoning, land subdivision, building, housing and sanitary codes, and equitable assessments for taxation purposes;

⁶ Household Management and Kitchens, Vol. IX, Pt. II.

⁷ Planning for Residential Districts, Vol. I, Ch. III.

⁸ *Ibid.*, Ch. II.

⁹ Slums, Large-Scale Housing and Decentralization, Vol. III, Ch. III.

also, that public improvement programs prepared by official or extra-governmental agencies should be carried out in the order of urgency, with due regard to the economic and financial commitments involved and their bearing upon taxes and land values.

As administrative adjuncts to such legislation, it recommends comprehensive studies of local conditions and trends affecting living conditions, and the appointment of trustworthy and competent administrative officials.

In other-than-legal control it recommends that community planning officials be assisted by extra-governmental agencies and public utility companies; that business men interest themselves in the planning and financing of home modernization; that a competent citizen agency be organized to sponsor, coordinate, interpret, and carry out plans for improving living conditions and maintaining economic stability in the ownership of homes; that government competition in housing operations should not be resorted to; that American business men cooperatively participate in making available good, low-cost homes through a local private agency; that business men in each community take a substantial part in the financing and realization of rehabilitation programs; that private restrictions in deeds supplement zoning regulations.

Committee No. 7—Industrial Decentralization and Housing.¹⁰ This committee recommends comprehensive regional planning; a national policy on railroad switching practices and rate making to permit freedom of location for industries. It recommends for other-than-legal control that greater interest in housing be taken by industries; that adequate financial facilities be established to help housing in urban and suburban areas.

This committee opens up many potential fields for legislation but reserves decision until more reliable information is available to determine the need for control.

Committee No. 8—Blighted Areas and Slums.¹¹ This committee lists many projects that require legislation but, because of their controversial character, withholds recommendations. It does recommend that building code requirements and rulings be analyzed to determine whether they are excessive or unnecessary;

¹⁰ *Ibid.*, Ch. IV.

¹¹ *Ibid.*, Ch. I.

that blighted areas and slums be replanned by the city planning commission on the basis of the neighborhood unit, accompanied by public improvements and protected by zoning; that where piecemeal demolition and reconditioning are not a solution of the slum problem, that demolition and rebuilding should be resorted to and, unless done by private enterprise, there may be irresistible demand for governmental action; that efficient municipal administration be provided in such areas; that the elimination of slums is a public purpose for which municipalities may reasonably exercise their right of eminent domain, but the acquisition of land for rebuilding therein has not as yet been recognized by the courts as a public purpose, and needed property must be obtained for the most part by purchase without state aid.

In recommendations for other-than-legal activities, the committee urges that an organization be created which will work in conjunction with the city to effect improvement through corporation purchase of slum areas and clearance for rebuilding.¹²

Committee No. 9—Reconditioning, Remodeling, and Modernizing.¹³ No legislation is recommended. The committee recognizes the need for further control over the quality of materials, construction, and installation methods used in home modernizing, with adherence to building regulations and regulations governing the installation of electricity.

To eliminate unnecessary litigation, all matters entering into the repair and reconditioning of dwellings should be clearly stated in writing, properly signed, and bids made thereon.

The committee sets up standards relating to safety and health to help families in the repair and improvement of their dwellings,

¹² The "Emergency Relief and Construction Act of 1932" (Public Act No. 302, Seventy-second Congress, approved July 21, 1932) provides, among other things, for the making of loans by the Reconstruction Finance Corporation to corporations formed wholly for the purpose of providing housing for families of low income, or for reconstruction of slum areas, which corporations are regulated by state or municipal law as to rents, charges, capital structure, rate of return, and areas and methods of operation, to aid in financing projects undertaken by such corporations which are self-liquidating in character. New York and Ohio are the only states now having laws providing for the creation and regulation of such limited dividend corporations but such legislation is being considered in several states, notably Illinois and Pennsylvania.

¹³ Housing and the Community—Home Repair and Remodeling, Vol. VIII, Pt. II.

and commends these standards, especially where there are no building or plumbing codes or organized fire prevention.

Committee No. 10—Construction.¹⁴ This committee recommends uniformity of arrangement in building codes and their periodic revision, since building regulations hamper architectural and engineering design when requirements call for antiquated methods; that simplified building permits be used; that a central permit office be established; that fees be based on area rather than on the cost of building; that the certificate of occupancy not be issued until completion of the building but be issued at that time, assuring the owner of quiet, undisturbed occupancy so long as he makes no unauthorized alterations and makes no unlawful changes in occupancy; that building officials be given ample authority to effect the purpose of the code; that the administration of building laws be trusted only to technically qualified persons with years of experience and good judgment whose tenure of office is dependent only upon satisfactory service; that more uniformity in building ordinances be established, and that building codes be so formulated without hard and fast specifications as to permit the inclusion of modern methods and uses of nationally accepted quality materials; that the greatest possible freedom of design consistent with safety be permitted.

Under other-than-legal control, it is recommended that title companies add to their service a complete history of the house, attaching copies of, or certifying to, the plans and specifications; that credit bureaus be set up and credit be given builders commensurate with their moral and financial responsibility; that local central inspection bureaus be established and supported by financial agencies; that a standard form of contract that is recognized by the courts, such as that sponsored by the American Institute of Architects be used; that home building agencies interest themselves in establishing higher standards for construction; that "grade-marked" and "trade-marked" material have definite value as has certification by recognized organizations of the installation of materials according to approved regulations.

Committee No. 11—Design.¹⁵ The committee recommends that good city planning, using the neighborhood unit of design with efficient street layout, is necessary; that legislation forbid

¹⁴ House Design, Construction and Equipment, Vol. V, Pt. II.

¹⁵ *Ibid.*, Pt. I.

future production of proved hazardous or unhealthful types of dwellings.

As other-than-legal control, the committee recommends that mortgage and building and loan associations finance only on sound design; that lending institutions, to protect mortgage investments, discontinue the policy of making loans on the types and sales prices of houses, irrespective of quality, merely because they are in local favor.

Committee No. 12—City Planning and Zoning.¹⁶ This committee recommends that a comprehensive city plan with detailed statement as to scope and coverage be adopted, and that a financial program within the financial ability of the municipality be created to make such plan effective; that the subdivision layout be regulated and treated on the basis of the neighborhood unit with standards for the apportionment of buildings, stores, street widths, parks and playgrounds, and other open areas; that utility services be installed prior to sale of lots; that state zoning enabling acts be adopted, and that scientific ordinances be drafted and administered for cities, urban regions, towns and counties; that control be set up to prevent land overcrowding; that municipalities guard against the prevailing tendency to zone too much area for business use; that zoning boards be conservative in granting variations of standards established and that they insist upon the correction of mistakes in the zoning ordinances by the bodies that enacted them; that automobile parking be prohibited on main thoroughfares when it interferes with free traffic movement; that parking spaces and storage be provided in business districts by stores; that trucks be loaded and unloaded on private land and not on public streets; that a legislative program be made for the redemption of blighted areas including replanning, clearance of slum sites, establishment of zoning control, reconstruction on a large scale protected by building regulations; that provisions be made for municipal holding of adjacent country land as reservations for parks, forest preserves, and unorganized recreation.

Committee No. 13—Finance.¹⁷ This committee recommends improvement in mortgage practices by the adoption of the Uniform Mortgage Act and, properly safeguarded, the removal of

¹⁶ Planning for Residential Districts, Vol. I, Ch. I.

¹⁷ Home Finance and Taxation, Vol. II, Ch. I.

usury laws in relation to second mortgages; better supervision over local mortgage lending agencies; and a revision of laws relating to the period of redemption from sales under foreclosures. For greater security in mortgage investment, it recommends proper city planning, zoning with intelligent administration, subdivision control, building regulations with adequate enforcement, and that consideration be given, when public improvements are proposed, to the capacity of home owners to pay the necessary special assessments and taxes. As an aid to stability of home ownership and the prevention of excessive cost of rent, it recommends that efficient, honest municipal government be maintained.

In recommendations for other-than-legal control, this committee favors the creation of local fact-finding bureaus to ascertain vacancies, the amount of new construction, transfers, recording, and similar data which will help to determine the annual dwelling construction needs; central appraisal bureaus with appraisals gauged neither by boom nor distress markets; central inspection bureaus to supervise the quality of construction and to permit better credit for well-built houses; local junior mortgage loan companies to help finance buyers who can make an initial twenty-five per cent cash payment on the purchase of a home; and an educational program to teach home buyers the advantages of long-term, amortized mortgages and of uniform deed restrictions with adequate provisions against their evasion.

Committee No. 14—Taxation.¹⁸ This committee recommends that tax relief be effected for overburdened properties by utilizing other sources of revenue available to municipalities under existing laws; that intangible personal property be taxed at a low, uniform rate, preferably measured by income, but if an income measure is impossible, that a low, flat tax rate on capital value be adopted to help relieve the burden on real estate; that a progressive, graduated, general income tax be adopted, provided that it can be definitely established that the additional income will be used to relieve the burden on real estate; that a good assessment system be used to eliminate bias against small properties of all types, including small homes; that the entire system of assessments and collection of taxes be strengthened, and that local assessors be subject to the control and direction of state authorities; that a definite policy of

¹⁸ *Ibid.*, Ch. III.

reducing aggregate public expenditures be adopted by eliminating overlapping governmental functions of states, counties, special districts, cities, towns, and villages; that political units, corresponding with economic regions, be established and, where regional units prove necessary, their activities be confined to those things which are clearly regional in nature; that laws affecting tax sale, redemption, and special assessments be improved.

The committee opposes special exemptions designed to stimulate building or home ownership; also opposes exemptions for buildings and improvements as distinguished from land.

It endorses the proposal to defer increased taxes upon new buildings and related improvements during the course of construction.

Committee No. 15—Home Ownership and Leasing.¹⁹ This committee recommends that protection to home purchasers and renters be given through the instrumentality of building codes, zoning ordinances, subdivision regulations, fire prevention, licensing real estate brokers, and improved assessment technique.

The following forms of other-than-legal control are recommended: Reform in mortgage practices and machinery to assure a more liquid supply of credit for home buyers; deed restrictions in the absence of or supplementary to zoning; legal advice to tenants before signing leases; staggering of leasing dates; preliminary surveys of dwellings, by qualified experts, before purchase; agreements of sale to guard against liens and other liabilities on the property; extra-governmental building inspection service set up by mortgage lending institutions; certification of building materials, standards, and conformance practices.

Committee No. 16—Home Furnishing and Decoration.²⁰

No recommendations for legislation are made.

Under other-than-legal control, the committee recommends that trade organizations standardize and mark products so as to preclude possible deception by misleading trade designations; that local decorative service bureaus, to which homemakers may go for advice, be established in connection with a central school.

Committee No. 17—Landscape Planning and Planting.²¹

¹⁹ Home Ownership, Income and Types of Dwellings, Vol. IV, Pt. I.

²⁰ Homemaking, Home Furnishing and Information Services, Vol. X, Pt. II.

²¹ Planning for Residential Districts, Vol I, Ch. V.

This committee recommends that congressional action be secured requiring footways along Federal or Federal-aid roads where necessary, and the use of all parts of the rights-of-way for such roads, not required for vehicles and pedestrians, for recreational and aesthetic purposes; that a suitable part of all appropriations for Federal or Federal-aid roads be set aside exclusively for planting and maintaining roadsides; that like action be secured in state legislatures with reference to state, county and township roads; that secondary roads be treated for all-year use so as to be safe, and planned or replanned so as to meet changing local conditions; that highway authorities be given jurisdiction, within a stated distance from the roadways, over offenses to health and to the eyes, such as roadside stands, tourist camps, and billboards; that provision be made along lines similar to the Massachusetts Trustees of Public Reservations for the acquisition and holding, as public lands, of tracts worthy of preservation because of unusual landscape features, such tracts to be selected by an unpaid committee, controlled by unpaid trustees, and held without taxation.

Further recommendations advocate: Footpaths and nature trails; directional signs with turnouts provided for their safe reading; complete authority vested in the local municipal government for street tree planting; planning of rural highways vested in state and county governments; that automobile parking be provided off streets, and that commercial open air parking be controlled in the interest of aesthetics.

It is further recommended that there be a correlation between the engineering work of the highway department and roadside beautification plans. The highway department should include a landscape division.

As other-than-legal control, it is recommended that small-grounds service bureaus be set up to help the small-lot owner in planning his grounds.

Committee No. 18—Household Management.²² Although the committee believes that, in general, legislation is not an effective means of improving the present situation, in regard to consumer buying, it recognizes the benefits of such laws as the Federal Pure Food and Drugs Act ²³ and the recent Mapes-Mc-

²² Household Management and Kitchens, Vol. IX, Pt. I.

²³ Public Act No. 384, Fifty-ninth Congress, approved June 30, 1906.

Nary amendment²⁴ thereto, and wishes to go on record as favoring the types of legislation which these represent. It recommends that Federal legislation be extended so that misrepresentation in advertising and misbranding of any article sold in interstate commerce could be controlled. In this connection, it should be pointed out that the powers of the Federal Trade Commission have been defined in a recent decision of the United States Supreme Court, which held that a practice does not come under the jurisdiction of the Commission unless it be shown that it tends to injure the business of competitors. This prevents the Commission from protecting the consumers' interest as such.

The committee commends the action of those states which have enacted effective statutes controlling advertising and establishing food grades. Greater uniformity in such legislation is recommended.

Committee No. 19—Housing and the Community.²⁵ The committee recommends that the following codes be adopted: Building; sanitation; plumbing; zoning; fire prevention; and housing. It also recommends that the following laws be adopted: City planning with neighborhood unit control; occupancy control; smoke and noise abatement; arson control and individual liability for fires to the extent that certain fire department costs for extinguishing fires be charged against the parties responsible for conditions which originate them.

Under administration, the committee recommends rigid sanitary inspection and the establishment of full-time county health unit service, particularly to handle the rural problem.

Committee No. 20—Farm and Village Housing.²⁶ This committee recommends that there be established a state regulatory body to determine and apply standards of housing and sanitation for labor camps and the housing of migrants; state and municipal housing regulations for tourist camps; and rural planning.

The committee also recommends the drafting of minimum requirements for good construction of rural housing to be used in educational campaigns.

²⁴ Public Act No. 538, Seventy-first Congress, approved July 8, 1930.

²⁵ Housing and the Community—Home Repair and Remodeling, Vol. VIII, Pt. I.

²⁶ Farm and Village Housing, Vol. VII.

Committee No. 21—Negro Housing.²⁷ This committee recommends zoning when not applied for racial segregation, the enforcement of building, housing and plumbing codes, the removal of legislation restrictive of Negro residence in desirable districts; and the establishment of minimum standards of housing for tenants on plantations. It recommends that a citizens' committee to promote law and law enforcement in the housing field and to render housing consulting service to Negro tenants be organized. The committee states that new legislation is not needed by Negroes but rather protection against discriminating application of the basic laws now existing.

Committee No. 22—Home Information Services and Centers.²⁸ This committee's report outlines a major plan of other-than-legal control. It recommends the organization of citizens' committees to encourage the collection and dissemination of information to help home buyers and renters in attaining suitable homes, and carrying on homemaking activities. The underlying motive for such service is to supply adequate information by means of which householders may be able to bring the pressure of discriminating judgment against faulty practices in building, buying, leasing and operating homes.

Committee No. 23—Homemaking—Housing and Family Life.²⁹ No recommendations for legislation are made.

Committee No. 24—Large-Scale Operations.³⁰ This committee recommends that in order to stimulate large-scale operation there be a revision of various laws, particularly zoning, taxation, and building codes, to remove features which, in their judgment, restrain this type of operations; that the use of the right of eminent domain be granted for the assembling of sites for large-scale operations; that legislation be enacted to stimulate the operation of limited dividend companies;³¹ that states remove restrictions against corporate ownership of real estate, both as to amount of land and period of holding by corporations formed to deal in real estate; that temporary exemptions from corporation taxes be

²⁷ Negro Housing, Vol. VI.

²⁸ Homemaking, Home Furnishing and Information Services, Vol. X, Pt. III.

²⁹ *Ibid.*, Pt. I.

³⁰ Slums, Large-Scale Housing and Decentralization, Vol. III, Ch. II.

³¹ See footnote 12, p. 108.

granted only to limited dividend housing corporations under state and municipal supervision; that tax exemptions for a limited period on buildings erected by limited dividend corporations be granted where other means fail to stimulate dwelling construction, and that, as an emergency measure, the present heavy burden on real estate be relieved by tax exemptions on dwellings under adequate restrictions; that there be rigid enforcement of laws against illegal agreements.

It recommends as other-than-legal control that regional mortgage discount banks be organized to liquefy mortgage resources;³² and that provision be made for credit in place of equity money for the purchase of materials for housing through the creation of an acceptance corporation by industries manufacturing building materials.

Committee No. 25—Relationship of Income and the Home.³³ The committee suggests there is a value in the creation of (1) nonprofit and limited dividend companies to provide low-cost houses, and (2) equitably financed and properly managed cooperative apartments in congested metropolitan areas to help families who cannot purchase one-family dwellings.

II. Review of Existing Legislation

The correlating committee, after reviewing the recommendations of the various Conference committees, recommends the following types of legislation for every municipality: The appointment of a planning commission and the preparation and adoption of a master plan to include a street layout, designation of open spaces, subdivision regulation, utilities extension, and zoning; building regulations; housing and sanitary regulations, including plumbing, for equipment, maintenance and occupancy; assessment procedure for levying taxes involving a separate set-up for land and building values, with assessment maps showing the assessment for each plot and posted or otherwise made accessible to the public; adequate control over conveyancing practices, mortgage loans and deeds, with equitable landlord and tenant laws.

These laws have been chosen because they relate to the planning of areas, the erection of structures, the protection set up against

³² See footnote 2, p. 103.

³³ Home Ownership, Income and Types of Dwellings, Vol. IV, Pt. II.

their early obsolescence or deterioration, the burden placed on real estate in meeting the cost of government, and the buying and leasing of houses.

1. City Planning Including Subdivision Layout

Eight hundred and forty municipalities in the United States had established official planning commissions up to the end of August, 1932, an increase of one hundred and forty-nine commissions in about two and one-half years. Besides these, there are seventy-nine county or regional planning commissions, official or unofficial. There are also fifty-one unofficial groups engaged in city planning studies.

Commissions are serving cities and towns of all sizes, evidencing the need in small towns as well as in large cities.

Planning boards vary greatly in the scope and effectiveness of their work, some simply guarding what the municipalities already have, some taking up only details of current development, others producing a definite plan for future physical development. Even the narrowest of these fields is worth covering and may save a municipality from detrimental development and from waste of public funds, but the board which produces a city plan is of the greatest help in public budgeting over a period of years, for long-range planning permits increased expenditure for public improvement in time of unemployment and low costs, and a corresponding decrease in times of labor scarcity and high costs. At the close of 1931, thirty-five states had laws in effect authorizing city planning. In twelve of these, the standard enabling act published by the United States Department of Commerce was used.

Planning boards are authorized by general or special legislation in thirty-five states. In cities of other states they have been appointed without special authorization by state law. The earlier planning statutes gave merely advisory powers to planning boards, but the trend of more recent statutes is toward giving the planning board more power. Especially is this true in the so-called master planning legislation patterned after the standard city planning act which was prepared by the Advisory Committee on City Planning and Zoning of the United States Department of Commerce in 1928. This act has been followed more or less closely in the planning legislation adopted by Arkansas, California, Colo-

rado, Connecticut, Kentucky, Maryland, Michigan, New Jersey, North Dakota, Ohio, Pennsylvania, and Virginia.

This committee believes that planning legislation is inadequate unless it provides a fairly effective control over development through the medium of a comprehensive plan which has legal standing. Purely advisory commissions will be disregarded for political reasons. A provision which compels reference of public improvement projects to the planning commission *when it has adopted a plan*, and which enforces adherence to the plan unless the municipal council overrides by a more than majority vote the planning commission's action, is the only way yet suggested which will produce effective and continuous planning administration.

Even the earlier city planning acts in this country dating from 1911, 1912 and 1913 gave the planning commission some measure of control over the subdivision of undeveloped land, and the more recent statutes of 1929 to 1931 have continued this practice. The standard act above cited provides that whenever a planning commission has adopted a master plan and filed a copy of it in the office of the county recorder, no plat of a subdivision within the jurisdiction of the planning commission shall be filed or recorded until it has the approval of the planning commission entered in writing on the plat. Under such provisions many planning commissions have adopted rather complete regulations for the subdivision of land which are working well.

2. Zoning Ordinances

Eleven hundred and sixty-five municipalities in the United States had zoning ordinances in effect on August 31, 1932, representing a population of more than 47,700,000 people, or more than sixty-nine per cent of the urban population. These zoned municipalities are located in forty-seven states and the District of Columbia, and include all sizes of communities from New York City to eighty-four towns having less than 1,000 population each. So far as is known, no zoning code, once it has been in effect, has been repealed because of dissatisfaction with the principle of zoning. Whole counties have been zoned in some cases. Zoning ordinances are not always comprehensive, that is, covering use, height, and area. Some cover use only, some use and area, and use and height.

Zoning is of vital interest to the home owner, in that it protects his savings, invested in a home, from loss due to intrusion of un-

desirable business buildings in a residential neighborhood. It makes his neighborhood a quieter, better, and safer place for him and his children. It tends to keep down municipal taxes because it allows highway and utility construction to be economically designed for one known use rather than for an unknown variety of uses.

Comprehensive zoning ordinances may now be adopted in every state. The Standard State Zoning Enabling Act, prepared by the Advisory Committee on City Planning and Zoning of the United States Department of Commerce, has been used in whole or in part by thirty-seven states.

Basis for Zoning. A zoning ordinance is based on the police power; that is, its provisions are justified only if they promote the public health, morals, safety, or welfare. It should be neither a textbook nor propaganda. It should be concise, and should be reduced to fundamentals, the importance of which will be easily recognized and will thus be more easily enforced.

Zoning ordinances are drafted in part by professional zoning consultants, but laymen must continue to take part in the work, either in actually determining zone lines or in wording of provisions. A properly selected committee can bring to the problem the help of men who have spent their lives in real estate development, architecture, engineering, law, social service, city government or other fields which relate to city development. Such men may have a far deeper knowledge of parts of the problem than any one man can have of all parts but they need help to make them see all of the problems involved. Such help can be obtained in part from publications of the United States Department of Commerce like the following:

A City Planning Primer.

A Zoning Primer.

A Standard City Planning Enabling Act.

A Standard State Zoning Enabling Act.

The Preparation of Zoning Ordinances.

Municipal Zoning Ordinances, a Brief Comparison of the Use and Height Regulations in Sixteen Cities.

Zoning and the Courts.

Zoning and Health.

Recommended Publications. In addition to existing publications, this committee believes there is need of a model zoning ordi-

nance for a large city and a model zoning ordinance for a small town. To the possible objection that such model zoning ordinances would lead to dangerous standardization and that each town is a special problem to be handled only by a zoning consultant, it can be stated that model codes have been of great assistance in the drafting of building codes, in improving arrangements and wording, and in the reduction of unnecessary variations. Of course there are conditions peculiar to each town which must be considered in a zoning ordinance more than in the case of building codes; nevertheless, many provisions, once carefully worked out and worded, could be safely copied. The publication "The Preparation of Zoning Ordinances" gives a part of the help which a model ordinance would give. It recommends phraseology for a few definitions and for a few provisions, but a model ordinance could embody these recommendations as well as many others. Copying from ordinances of larger cities, a common practice at the present time, may result in inflicting ill-adapted and unnecessary legislation on smaller places. It is not recommended. A model ordinance should, of course, be kept up to date and should in particular work out carefully studied provisions for the increasingly difficult problems of automobile parking and garaging.

3. Building and Housing Codes

Building and housing codes vitally affect comfort, health, safety, and the cost of housing. If a building code requires walls to be thicker and floor joists larger than are necessary, the home builder's money is wasted. If the code allows thinner walls, smaller floor joists than are consistent with safety, or careless chimney construction, or if a municipality has no code at all, the home owner's life and property may be endangered. If yards and courts are made extravagantly wide, he may not be able to afford to build but, perhaps, be forced to remain in far less desirable housing. If yards and courts are made too small, he will not get his fair share of light and air. Building and housing codes are not, therefore, technical matters of interest to builders only. They affect the pocketbooks of all, particularly those who must build economically.

Present Codes Defective. The Building Code Committee of the United States Department of Commerce has carried on an investigation for several years as to the prevalence and content of

building codes. They found many communities without codes, many with incomplete codes, and many codes with obsolete provisions. There were great variations in provisions which could have been uniform throughout the country, and the codes which varied on the side of unnecessary conservatism were wasting the money of the community which suffered them. Unnecessarily high requirements for floor loads, for stresses on wooden, steel, and reenforced concrete beams, unnecessarily thick walls, unnecessarily severe requirements for fireproofing, were found to be common. As an example, New York City allowed only 16,000 pounds per square inch basic stress in steel for some time after other cities had raised their value to 18,000, and New York was using more steel in building work than any other city in the country. Some municipalities required twelve-inch thick walls for two-story dwellings, whereas eight-inch walls had been used for years in other towns with entire satisfaction. Floor loads in dwellings ran as high as eighty pounds per square foot, whereas forty pounds had given entire satisfaction in other towns for years. The requirements for fire protection of garages, when built as a part of dwellings, are, in some towns, more severe than in others, and more severe than the number of fires originating therein would warrant.

One reason why obsolete and uneconomical provisions are allowed to remain in force is the inertia of the enforcing officials who have become used to the code and dislike to change, even though the old code has become so confused and ill arranged by amendments that it is an unnecessary puzzle to builders who use it. Another reason why obsolete code provisions remain in force is the cost of revision and even of reprinting. The committee recommends the adoption of state codes to cover fundamentals. This would allow a single careful revision to apply at once to all municipalities in the state. Excessive requirements are not merely matters of technical interest to architects, engineers, and builders; they are always, where suffered, a continuing handicap to economical construction.

Building and housing codes, like zoning ordinances, are drafted in part by professionals but in large part by committees of men experienced in particular branches of the building industry. Each member can bring special knowledge of a part of the work based

on his experience, but he needs help on many problems outside his experience. It is better to have a code thus written by the combined efforts of the most experienced men in the industry than by a consultant alone. The preparation of codes by enforcing officials alone should be discouraged, although they should always be represented on the committee. Too often, in small towns, building codes are drafted by copying from the code of a nearby city, eliminating some provisions considered inapplicable. These considerations make it desirable that all possible help should be furnished to drafting committees.

Basis for Building Regulations. As in the case of the zoning ordinance, a building code also is based upon the police power; that is, its provisions are justified only if they promote the public health, morals, safety, or welfare. As expense and difficulty are encountered in enforcing any law, a building code should confine itself to the limits of the police power. It should cover essentials only. It should not be a specification, instructing an ignorant builder on how to build. It should not specify size of radiators and heating pipes. Its only concern with heating is the proper construction of the chimney and the requirement of enough fresh air to rooms where a number of people are assembled. It should not specify details of plastering. It is concerned with plastering only when plastering is used for fireproofing. A building code is not the proper instrumentality to be used by any trade to eliminate the competition of ignorant or dishonest men in the trade, nor to protect the owner from poor materials and workmanship unless there is danger involved. It should not limit construction to particular materials and methods in use in the past and present but should be so written as to allow new materials and methods to be used as soon as they have passed prescribed tests. Economical construction of dwellings can be encouraged by a code which allows the widest competition in present materials and which encourages the early use of new materials. Most of the provisions of a code can now be based upon reliable tests and experiments rather than on rule-of-thumb guesswork. Requirements that new materials shall give certain results when tested by reliable laboratories will open the way promptly for improvements.

A building code should not be too strict. A single carelessly drastic sentence may add thousands of dollars of unnecessary expense to many buildings for many years. It is easy to require

too much fire protection, such as completely fire-resistive construction for small dwellings. It takes a little more time to analyze each type of occupancy and limit the amount to fire protection in each case to the needs. The greater the restriction, the smaller is the chance for competing materials which may lower costs appreciably. If a zoning ordinance or housing code is too strict, applicants will obtain relief for their own particular buildings by appeals. In case of uneconomical requirements in a building code, however, builders are much less likely to appeal for relief because they feel that hardships as to floor loads, stresses, and wall thicknesses apply to their competitors as well as themselves and they can get no particular economy for their own building without a revision of the provision which would then become general.

A building code and its accompanying interpreting regulations should give enough information so that plans can be drawn with the assurance that no changes will be required by the enforcing official to conform to any interpretation which is not in print.

There are far too many variations in the provisions of building codes. Certain provisions could be uniform throughout the country, such as floor loads and stresses on steel, reenforced concrete and wood. Many more could be uniform throughout any single state. Adjoining municipalities should certainly not have different requirements as to floor loads, stresses, and fire protection. It ought not to be more expensive to build a house in one municipality than across a municipal boundary. It is an unnecessary complication to require architects, engineers, and builders having a state-wide practice to look up such matters in every new municipality they work in, particularly as the variations do nobody any good but, on the contrary, unnecessarily raise the cost of building in the towns where the requirements are higher than they need be.

State Building Code Recommended. A state building code covering fundamentals, leaving municipalities free to enact such additional ordinances as are made necessary by differences in urban and rural conditions, would result in simplicity of enforcement and would avoid the variations in the direction of extravagance in some of the local codes. Most towns are too small to maintain a board having power to issue detailed interpretative regulations and to approve new materials as soon as they have passed prescribed tests. A state could call upon the best men in the state for such a board and could then make such decisions for the whole

state. State building codes covering such fundamentals as floor loads, stresses, wall thicknesses, chimney construction, fire protection, exits, steel and reenforced concrete construction, and parts of the plumbing regulations could be drawn up by stronger committees than are possible in individual towns, and could be kept up to date. Enabling acts could then leave to the individual municipalities the power to enact the provisions which may reasonably differ in large and small municipalities, such as organization of inspection department, housing, fire districts, sewage disposal, roof coverings.

Enforcement Bureau. As to the enforcement of building, zoning, housing, and plumbing codes, it is believed that convenience of the builder and the extravagance of overlapping inspection require that one city department should enforce all such regulations, so far as building construction is concerned. The question of maintenance is another matter, but the construction of new buildings or the alteration of old buildings should be in the hands of a department which is fully acquainted with the business of building construction as a whole. The justifiable complaint of builders that they must apply at too many different departments for permits and that some of these departments are hopelessly ignorant of the job as a whole would thus be answered.

The enforcement of building codes in small municipalities at present must be left in the hands of some local builder who gives only part time to the inspection. He may be competent to inspect residence work and such buildings as schools and churches which do not use steel or reenforced concrete, but when factories, apartments and schools involving steel or reenforced concrete are built, he is entirely unprepared to check the plans. Many of the smaller cities, having departments with several inspectors, may not have anybody competent to check steel and reenforced concrete designs. One remedy for this condition is for a number of municipalities to combine under a building inspector or a department with two or three inspectors who would give full time to the work and could thus get better men to serve. Another remedy is to establish a state inspection department to which a local inspector could send, for checking, plans of a design which was beyond his capacity. Such a state department could also include a board whose duty it would be to issue regulations, make rulings or interpretations, render advisory service, and to certify that new materials passed

the requirements of the tests laid down in the state building law for fundamental requirements.

Available Publications. The following governmental publications³⁴ are now available to help those who are drafting building codes:

Recommended Practice for Arrangement of Building Codes.

Recommended Minimum Requirements for Small Dwelling Construction.

Minimum Live Loads Allowable for Use in Design of Buildings.

Recommended Minimum Requirements for Masonry Wall Construction

Recommended Building Code Requirements for Working Stresses in Building Materials.

Recommended Minimum Requirements for Fire Resistance in Buildings.

Recommended Minimum Requirements for Plumbing.

Information on quality of materials and on many phases of construction is to be found in the standards of the American Society for Testing Materials and the American Standards Association. The United States Bureau of Standards also publishes the results of numerous tests.

This committee recommends that the following new models be prepared:

Standard Act Establishing State Building Code.

Standard Enabling Act Allowing Several Municipalities to Establish a Combined Building Department.

Model Building Code for Small Municipalities.

A publication kept up to date, on Building Codes and the Courts, like Bassett's *Zoning and the Courts*.³⁵

It would be desirable that each state allow building codes to include standards established by national technical societies of unquestioned standing to be incorporated in a building code by reference to a particular standard of a particular date, thus avoiding a large amount of printed detail in the code. The ideal, if constitutional, would be to allow each revision of such standards to become a part of the code as soon as accepted by the building inspector. An alternative is to give power to a board of standards to issue interpretative regulations which would accomplish the same thing; that is, keep the code up to date with the latest standards established by unprejudiced technical societies.

³⁴ Prepared by the Building Code Committee of the U. S. Department of Commerce, available from the U. S. Government Printing Office, Washington, D. C.

³⁵ This is available in mimeographed form from the Division of Building and Housing, U. S. Bureau of Standards.

4. Taxation

While laws dealing with the foregoing problems have had wide application in the United States, they have not been adopted by a majority of American municipalities. Their further adoption is essential to the prevention of housing problems and it may be reasonably anticipated that they will spread until all municipalities have enacted them. There is, though, one type of law, viz., taxation, that has been universally adopted. The problem here is not one of educating the public to the need for tax laws but to the need for tax law reforms. Under present practices, too large a percentage of public revenue is derived from taxing real estate values, and residential real estate carries the major burden. It is pertinent to this review to discuss such taxation because its inequalities injuriously affect home ownership and increase unduly the cost of rent.

The Conference Committee on Taxation discussed this subject in detail. This correlating committee wishes to point out that tax relief for residential real estate is a major need today. It can be secured through a reduction in the cost of government but that is a slow process, particularly so since such a large proportion of the population gainfully employed draw their incomes from city, county, state, and Federal treasuries. (One American city has discovered that, of its population, one out of every sixteen workers gainfully employed so derives his income.) Other sources of revenue than real estate values will also afford necessary relief. But even so, the costs of home ownership, as also the cost of rent, are integrally bound up in the equitable distribution of the tax burdens between those on values of residential real estate and of real estate of a nonresidential character, as well as between residential real estate of high values and those properties owned or rented by the average family. In order to secure such equitable distribution of the tax burden, municipalities must adopt an assessment policy which is founded upon a scientific appraisal, separating assessment of land from improvements on land, though each of them may be required to bear its share of the taxes to be collected. Inequalities in assessment distribute the tax burden inequitably. Because assessors often have an indefinite idea of values, they approximate more nearly the sound value for small dwellings and underestimate values of larger properties. To offset

this "guess work," there should be set up in every community: First, a system of scientific appraisal; second, a separate assessment of land and improvements; third, publicity of assessments so devised that ready access to the records may be had by every taxpayer, bringing to bear, thereby, the force of interested public opinion on the values established for tax purposes, thus effectively checking preferential consideration so often given for political purposes as well as correcting inequalities originating in all other ways.

5. Conveyancing Practice, Mortgages, Deeds

It is important that persons who invest perhaps their entire savings in a home should be able to get a clear title at a minimum of expense and with as little duplication of examinations as possible. Title companies reduce this duplication. The Torrens System of land registration, well administered, minimizes the ultimate cost of title examination and the risk of defective title, and this system, or some similar method of providing land title registration by certificate, has been adopted by eighteen states; by Illinois and California as long ago as 1897. Under the Torrens System, the owner is given a certificate of title, good against all the world, any subsequent claimant showing a better title being compensated by the state. After the original registration, all subsequent dealings in the land are entered on the certificate and no new examination of title is needed.

The expense of an original registration of his land may be too high for the ordinary purchaser of a home but if a developer gets his whole idea registered before subdivision, the cost is small and the purchasers are saved expense and yet have titles guaranteed by the state. The adoption of the Torrens System in states where it is not yet in use and the registration of subdivisions thereunder would relieve home buyers of the expense of title examination and the risk of defective titles.

Some states still have long forms of deeds and mortgages whereas other states have short forms. The latter are a desirable improvement because the home buyer can understand them and because the expense of recording is less.

Much divergence with respect to the foreclosure of mortgages exists in the different states. In states in which mortgagors are protected by favoring legislation, money lenders demand interest commensurate with the trouble which they incur in foreclosing,

whereas, in states in which foreclosure proceedings are simple, good real estate first mortgages are considered the most desirable form of investment and interest rates are low.

A new suggestion is made that the original seller of a new house should be required to include in the agreement of sale a descriptive list of the more important structural elements which are concealed from view in the completed building and which may or may not be of inferior quality. The inclusion of such a list in a standard form of the agreement of sale would call the buyer's attention to details of which he is apt to be ignorant under present conditions.

6. Landlord and Tenant Laws

In the field of house occupancy there are many statutes purporting to protect landlords and tenants against practices indulged in by each against the other. They are not codified and often are contradictory. Largely relating to distraint and repossession, these laws set up guarantees and exemptions, that is, the right to levy on goods and garnishee wages, under limitations, so as not to take all the property of the tenant nor all his weekly or monthly wage. These laws are weak and afford neither party adequate protection. Delinquent tenants, notwithstanding, evade their responsibilities either through the leniency of the courts or the relatively inadequate value of the decisions if judgment is obtained. Landlords, through the instrumentality of written leases, force the tenants to waive their rights and thereby, through the priority given to contracts, abrogate such protection as the statutes set up. As these laws now operate, neither party is protected against the worst elements of the other group. One of the imperative needs here is for a revision of the statutes governing these relationships and an administrative machinery to assure each fair practice. A more detailed discussion of this subject appears in the report of an analysis of lease forms in Appendix I, mentioned on page 146.

III. Administrative Problems ³⁶

Administration, the Strength of Law

The strength of law may be said to lie in its administration. No matter how comprehensive a law may be, nor how general in scope

³⁶ See statement regarding Appendix II, p. 147.

or specificational in character, its effectiveness is limited to the adequacy of the administrative machinery created to enforce it. Law is not self-enforcing. Merely to promulgate it accomplishes little.

Some existing laws which pertain to the problems considered by Conference committees are not effective because they are not enforced. Some even create problems and discourage the removal of the conditions at which they were directed. Most municipalities reveal legislative authority far in excess of administrative efficiency. It is not the purpose of this committee to analyze the efficiency of administration of any law but to discuss general administrative problems and to point out some fundamental principles for guidance.

Faulty Administration Costly

Even a casual analysis of the results of faulty administration reveals such uneconomic and antisocial consequences as:

1. Partial or total nullification of the will of the people as expressed in legislative mandates;
2. Continuance of practices that were outlawed by statute because they were unsafe or detrimental to public welfare;
3. Added burdens placed on government through the persistence of conditions that reduce tax revenue or require excessive expenditures;
4. Benefits withheld from the public which a reasonable application of the law would have conferred;
5. Disrespect for other laws with an attendant weakening of the will to obey law.

Better Enforcement Fundamental

It is fatuous, therefore, for any group to initiate programs for better housing which require legislation unless they are willing to set up and use essential enforcement machinery.

The task is not easy because there are always those who, for selfish reasons, fail to support laws which represent a sound economic and social policy. Hence, they tinker with the enforcement bureau to break down its administration, or they defy its mandates. They interfere with the enforcement of building and sanitary codes, housing laws, planning regulations, tax assessments, zoning, and like statutes for which administrative bureaus are established. They use political power to prevent adequate appropriations for enforcement work, or secure the appointment of officials who

know when to be lenient, sometimes for a price and at other times for expediency. They tamper with appeal boards or secure special consideration from magisterial or other courts of jurisdiction. In the fields where violations are criminal offenses and enforcement bureaus have jurisdiction over a variety of laws, they set up practices which, though technically legal, circumvent the intent of the laws that would regulate their conduct. Thus, in the financing of builders and home buyers, in the letting of dwellings, foreclosures and evictions, they succeed, to the injury of the public, in nullifying the laws enacted to assure equitable practices. It is, therefore, important that there shall be set up, as an integral part of all law in the field of the Conference, adequate administrative machinery to see that the intent of such law is reasonably carried out.

Administration Depends on the Administrator

Just as law depends on its administration for its effectiveness, so administration depends on the work of the chief administrator and the adequacy of the administrative machinery supplied him. During recent years there has been a noticeable trend toward establishing qualifications for administrative officers in order to obtain efficient personnel. Perhaps this movement is best illustrated in the qualifications set up for chief building inspectors. In an analysis of cities with a population of 10,000 and over, it is found that practically all have definite requirements that such official shall be either a practical builder, architect, or engineer, conversant with modern building practices. Most cities require from five to ten years' experience in their profession. A few have no qualification requirements, but it is generally recognized that training and experience are essential requisites to adequate administration. However, more is needed than training and experience. Bureau chiefs should have adaptability as well as sympathy with the laws they are to enforce. Municipalities have a right to expect that such appointees will be honest and reasonably efficient.

Administrative efficiency is further strengthened by maintaining the chief enforcing official and all capable members of his staff continuously in office regardless of the changes in political power. At present, official mortality among administrative officials is high in the United States. Provisions for continuity in office and for adequate salary with pensions upon retirement protect such officers from political interference and not only encourage them to make

their jobs a life work but also help to elevate their service to the dignity of professional standing.

There is a further advantage in increasing the stability as well as the length of service of such officials in that the chief enforcing officer gradually establishes a bureau policy, with rules and regulations and a mental attitude toward important requirements which automatically determines the stress to be placed on different aspects of law, and contributes to the protection of the public.

Adequate Budgets Essential

Few qualified officials of the type which should be secured and retained in administrative positions are willing to stultify their services by working under the handicap of an inadequate budget. In order, therefore, that municipalities may have adequate enforcement, more attention should be paid, in the determination of budgets, to the essential needs of administrative bureaus. Today most cities starve departments that maintain an inspection service; few budget their funds in accordance with the importance or quantity of work to be performed. The result is wasteful and expensive to the public because the protection which should be provided is inadequate, and therefore losses are inevitable.

It may be too high an ideal to attain, but administrative bureaus should predicate their budgets on the character and quantity of the work they have to do. If this procedure were followed, inspection bureaus could establish a norm of service per inspector, per day, and then by determining the value of permits, the quantity of construction, the distribution of population, or some other unit of measurement, decide on the size of inspection and clerical force needed.

The justification for this procedure in budget making is found in the economic returns to the municipality. It is based upon the conclusion that good administration is always reflected in municipal income through the increase in taxable values and tax revenues. If, therefore, these four essentials are made a part of the policy of a municipality, namely, security for employees, adequate salary for services rendered, a pension system to offset the opportunities for advancement in private practice, and scientifically determined budget to carry on the duties assigned, undoubtedly, the whole tone of municipal government in the United States, in so far as it affects housing, would be improved.

Administrative Sequence in the Office

If, as has been stated, the strength of legislation is in its administration and the strength of administration is in the caliber of the personnel engaged therein, it is also true that the efficiency of administration is integrally dependent upon the technique of administration as shown in the administrative sequence or flow of work within the organization.

No attempt will be made here to outline an office organization program. Such an outline appears in an appendix to the report mentioned on page 147. It involves questions of forms used, methods of plan approval, issuance of permits, inspection service, recording, compliance or noncompliance orders, and legal proceedings against persistent violators.

There are certain phases of the plan-of-work program in some administrative offices that interfere with efficient operation. Chief among such are the multiplicity of forms, the diversity of offices having joint jurisdiction over the issuance of permits, and the poor adaptation of inspection routine to the kind of inspection needed, all of which are within the control of the administrative bureau.

Application Forms. Thus, in the matter of forms of applications for building permits, which is a conspicuous example of weak practice, the Division of Building and Housing of the United States Department of Commerce⁸⁷ has issued a mimeographed synopsis covering 101 pages of about 1,200 forms submitted by forty-two cities. These forms range from two for the smallest exhibit to one hundred and eleven for the largest. In the questions appearing on these forms there is, to quote the division, "abundant evidence of the lack of uniformity prevailing throughout the country" with an insufficiency on the one hand and an overabundance on the other. The questions appearing on these forms reveal a difference of judgment among building officials as to what are essential requirements. Thus, on forty-three forms from twenty-seven cities there were 900 different questions out of a total of 2,966 asked. It is clear that there is a need for simplified forms which would conserve the time of the enforcing bureaus.

Permits. There is also opportunity for increasing administra-

⁸⁷ "An Analysis of Forms of Application for Building Permits," November, 1930.

tive efficiency in the method of issuing permits. In some municipalities, applicants for permits have to visit many bureaus, boards, and departments before they receive authorization to proceed with construction. This journeying from bureau to bureau, with its attendant delays while waiting in turn for attention, creates ill will toward the offices involved and is costly in time and money to the applicants. Many laws, all pertaining to construction, such as plumbing, zoning, building, utility services, etc., are administered in different departments. Some might be combined under one jurisdiction, such as plumbing and building, or zoning and city planning. Where there are correlated functions, it is a simple matter to appoint a special permit clerk to attend to this task. Good technique suggests that where this service is distributed among several departments, they cooperate in setting up a central permit office, as is done in some cities, where representatives from each department having jurisdiction have desks so placed that the necessary approval of plans and issuance of permits may follow in orderly sequence.

Inspections. Inspection service is the third type of bureau work which is provocative of problems harmful to administrative efficiency. Ordinarily, such bureaus are more interested in those aspects of law which pertain to conditions prior to occupancy, namely, planning, plot subdivision, utilities extension, zoning, building construction, plumbing installation, and general housing requirements, while the public is more concerned with actual occupancy, since as home owners or tenants, they come in contact with conditions that affect their personal comfort. Good administrative technique suggests that this division of interest be recognized and that the inspection service be divided, one section on new work and the other on occupied structures and all that pertains to them.

Occasionally this has been done, but the latter service is almost always neglected. The result is great public dissatisfaction. But what is worse, there are many structures in city and country alike that are old, inadequately equipped for sanitary occupancy, and structurally unsafe. These are receiving little official attention excepting on citizens' complaint and usually, even then, not as promptly as the need warrants. Left uncorrected, they are not only a material sign of governmental inefficiency but may be a direct menace to public welfare. If, after complaint has been

registered, the existing law is adequate to secure the removal of such conditions, then the government is derelict in one of its fundamental duties in not having done the work on its own initiative without waiting for complaint. Thus, periodic inspection of old structures becomes an essential part of efficient administration. No administrative officer can afford to neglect those services which help to establish and maintain public support.

Boards of Appeal

Other phases of law enforcement that have a direct and important bearing on successful administration are the exercise of discretionary power by bureau chiefs in the interpretation of laws, the jurisdiction of appellate and advisory boards as interpretative or regulatory units, and the dependence, in the final analysis, of administrative bureaus on courts of jurisdiction; all are discussed in the appendix, and need no detailed consideration here.

The administrative officers who have been canvassed on the use of discretionary power are in agreement that modification is advisable for standards which have been proved obsolete but are still statutory law; they also agree on the advantages and disadvantages of boards of appeal.³⁸ Actually, administrative efficiency is increased when laws reduce the discretionary power of the chief enforcing officer to a minimum. However, when discretionary power must be placed in the hands of such official, it should be in relation to standards which are in a state of flux due to new information about the strength of materials, or to the discovery of new materials and new processes, or as in zoning ordinances when strict enforcement would inflict unnecessary hardship. Even then, administrators almost unanimously take the stand that better results are obtained when advisory boards *outside* the department involved, made up of technically qualified men, are created to pass upon such materials and to correlate with the enforcing official in determining their admissibility. Likewise, it is the common judgment of such officials, that where latitude is vested in their own office, or where laws, such as building codes and zoning ordinances, are so written that the application of the letter of the law would be in opposition to the spirit of the law, appellate boards have a definite function. This is particularly true since such boards re-

³⁸ See statement regarding Appendix II, p. 147.

duce the number of court tests of the decisions of the chief and the constitutionality of the law. Such boards not only prevent the clogging of court calendars, already overloaded in most municipalities, but they protect the chief administrator, where political pressure might be exercised, against delays and against having his power weakened through adverse judicial decisions. But whether boards function as advisory or appellate bodies, or bureau chiefs make the policy decisions required by law, in either case ample records of the decisions suitable for court review should be kept as a public record. In the case of court review of decisions of Boards of Appeal, the court should not have jurisdiction to retry the case on the facts but should merely have authority to determine whether the action of the Board of Appeal was in accordance with law.

As to whether correlated functions should be combined in drafting new legislation the response to questionnaires sent to building, health, zoning, and planning departments showed an almost unanimous opinion in favor of correlation of two or more of the functions of the city planning, plot subdivision, utilities extension, zoning, housing, building code and sanitation.³⁹ Most of the answers favored a combination of zoning, building, housing, and sanitation and gave as reasons the advantages of permit and inspection control in a central bureau, combination of bureaus under one head, avoidance of friction by providing uniform regulations, and possibility of training a more competent personnel. It is said, however, that it is much easier to pass one ordinance at a time than to complicate the process by considering three or four different subjects at one time. The oppositions to a comprehensive ordinance are also likely to be more numerous than if one subject at a time is considered. Opposition to a portion of one subject may endanger the whole ordinance.

Courts of Law

There is no phase of administration that is more in need of revision than are the practices followed in securing the enforcement of penalties against pernicious violators. This need for revision begins within the department with its elaborate routine for serving notices, or its defective system for summarily stopping the develop-

³⁹ See statement regarding Appendix II, p. 147.

ment of plans or the erection of structures when violations have been found. Furthermore, because the city law officers are unfamiliar with the unusual type of case involved, it often happens that when the case comes to court, it is not properly presented, its importance is not appreciated, and it is treated as a waif in whom no one is interested. The result is protracted delays and practical nullification of the penalty clauses. In some cities where summary proceedings before courts are authorized by law, notices to appear have been served on violators six and eight times before warrants were issued. Even then, such courts often discharge flagrant offenders merely with costs so that violators frequently repeat their offense, boasting that it is cheaper to pay such "fines" than to make the corrections.

Naturally, enforcing officials lose confidence in the courts, and the general public lose faith in the courts and in the officials who lack court cooperation.

Other-Than-Legal Control

Attention has already been called to the multiplicity of recommendations of the Conference committees for other-than-legal control. This type of control is due in part to ineffective laws and faulty administrative practices, and in part to the growing belief that if certain practices were left unregulated by statutory law, they would create their own control through economic and social pressure. This principle is apparent in fire insurance where failure to install electric wiring in accordance with specifications of the National Board of Fire Underwriters is justifiable cause for nullifying the policy. It is apparent in the practice of some building and loan associations in the setting up of their own inspection service to assure compliance with safe practices during the period of construction, and some financial institutions—bank and mortgage lending houses—similarly protect themselves against the early deterioration of poorly built structures by demanding grade-markings and other forms of certification of honesty in construction and equity in legal relations.

While to the student of government the demonstrated inadequacy of law and law enforcement in the broad field of housing may have serious aspects, yet these weaknesses hold great promise for the correction of certain evils without the necessity for government intervention. They mean that attention is being focused on

the limits of what can be done by governmental action and also that a determination is developing not to place entire reliance on state aid for results which may be gained by group action. They mean, also, that a power is being set in motion which will bring to bear the forces of economic and social pressure where governmental pressure has often failed. Thus, through such instrumentality, certificated houses and building materials will curtail sales of inferior products; with substantial construction the basis for granting mortgage money, the builders of jerry structures will be forced to pay excessive bonus charges; information centers will curtail bad practices in selling and leasing of houses; civic associations or trade groups equipped with first-hand knowledge of dwelling needs, sales prices, purchasing power, and like data will be able to shape new construction programs to meet the needs and the purchasing capacity of the public. All such other-than-legal measures designed to bring social and economic pressure to effect wholesome ends are bound to react beneficially on the housing field. Finally, public sentiment will be educated to the point where laws will be considered as an adjunct to ends desired, instead of first means to such ends.

Administration—Nonurban

In this review of outstanding administrative problems in the field of housing, attention naturally has been focussed upon those laws and their administration which are chiefly concerned with inspection services and the control of urban conditions. When they are in operation in areas of more scattered population, the same general principles apply. The main difference is in the size of the bureaus set up for enforcement. There should be no difference in the per capita cost of operation except that in the smaller units such cost is scaled down since the volume of work is less. Difficulties in administration do appear, due to the diversity of knowledge and authority that have to be vested in one or two officials.

This handicap may be offset, as has been previously stated, by establishing a cooperative service in contiguous communities whereby one central bureau for an area may be set up and jointly financed, permitting the employment of a technically trained staff. Where this is not feasible, the state, which, after all, has a major interest in the application of control over potentially hazardous conditions, should establish a central bureau from which qualified

officials may be borrowed for the relatively few local calls that would be made upon them.

Administration—Noninspectional Types

Not so easily may we dispose of the problem of enforcement in the administration fields where inspection plays a less prominent part. There are many such fields in the scope of housing law, such as city planning, landlord and tenant relations, mortgage loans, and sales practices. With the exception of the inspection activities, the principles and problems here discussed apply to such fields. However, important as is the chief administrator in all services, in these specialized fields he becomes of even greater importance, for he is vested with duties additional to regulation and direction. He has to study problems, collect data, shape and suggest programs, and create forms of social control seldom required in other types of administration. Often, failure to measure up to the responsibilities of his office leads to adverse economic reactions.

To a large extent the jeopardized investments of the past decade in building construction loans and home financing are traceable to the failure on the part of bureaus having jurisdiction, as well as lending institutions, to study trends and gauge current practices in the light of the inevitable period of depression ahead. Had administrative officials in their fields interpreted the duties of their offices as necessitating studies of current practices in the construction and real estate field, they would have been informed of the hazards inherent in trust company loans for building construction and building and loan association loans for home financing on inadequate equities. Such knowledge would have justified their application of control with all its beneficial consequences. The necessity to analyze problems and to apply restraint appears in all the noninspectional types of administration, and helps to carry out not only the letter but the spirit of the law. In such interpretation and application of administrative duties, lies one of the surest means for lowering the cost of government.

Volunteer Effort

The field assigned to this committee covered legislation and administration but it has been considered desirable to mention voluntary effort as a substitute for legislation. In the field of

financing housing, for instance, building and loan associations are now working out a model state code. The associations might also help by providing for a better real estate appraisal service and better advisory and inspection service on plans and during construction of dwellings. Washington, D. C., has a committee of architects who give their services to improve the designs of buildings which may be submitted to them.

IV. Program for Promoting Recommended Legislation

Conference committees have indicated that legislation is needed. In their reports they were not considering sectional needs, but problems in the prevention or control of which suitable regulations, if adopted, would be helpful. The variety of legislation thus recommended is not large. There is no encouragement of the national pastime of lawmaking. The tenor of the reports, and the alternative methods suggested where law has heretofore been considered the only effective control, show they are not urging the interested public to start an avalanche of law promotion. If new law is needed, as it is in many fields, it is important that a technique be followed which will assure wise drafting of laws and effective promotion, free from errors common in the past.

The following suggestions are offered for the consideration of those organizations or individuals who are interested in promoting better housing conditions in their communities:

Types of Legislation Needed

Manifestly, legal authority may range all the way from the making of a change of a minor character in a local ordinance or building code to an amendment of a state constitution, perhaps ultimately of the Constitution of the United States itself. There is an unmistakable tendency in our state and Federal courts towards a broader recognition of human rights as against a narrow legalistic interpretation of property rights. Hence, while consideration should obviously be given to alleged constitutional handicaps to effective legislation, undue timidity or conservatism in legislative drafting may be a real foe to further progress.

Before engaging in any legislative program, it is suggested that interested individuals or groups should analyze their problem by putting to themselves such questions as the following:

1. What preliminary work should be done before legislation is promoted?
2. Do conditions warrant additional legislation—that is, what facts point that way?
3. Is legislation the surest remedy?
4. Have other methods been tried, or, if tried, failed?
5. Has the proposed legislation been tried elsewhere, and with what scope and with what effect? If not successful, why not? Would similar handicaps be likely to be experienced locally if a similar law were enacted? Is there any promise that such handicaps would be overcome?

Legislation should not be introduced unless other forms of control cannot be set up. There is a proneness to approach every problem with a "let's have a law about it." Maybe the only law that could be secured in the then state of public interest would be one that would be destined to be a dead letter if enacted, or one that would set up standards which would be minimum in intent but which actually would prove the maximum standards in practice because they were expressed in legal phraseology. Confronted with a problem needing solution, interested groups should be advised to analyze the possibilities of "social" control or "financial" control. Legislation often is a boomerang, even when the intent is the best.

The existence of a particular law in one community does not necessarily warrant agitation for it in another community. It must be proved by local needs. For example, the legislation recommended by the President's Conference may or may not be needed in every community. Groups should be warned that legislation should grow out of community needs and not be superimposed on the community irrespective of the needs because a few persons are legislative-minded and believe that they are doing something when they are agitating for a law.

Importance of Well-Selected Supporting Data

Two kinds of data of special value in influencing legislation are definite facts or opinions from authoritative sources as to the evils of existing conditions (such, for example, as the effects of the slums on public health and juvenile delinquency), and examples of good legislation and successful demonstrations elsewhere.

Housing associations, interested in improving local housing conditions, can often secure valuable supporting data from existing

reports of city and regional plan commissions and other research studies; and in making new studies, consideration should be given to aid obtainable from such sources as local colleges and civic bodies, and from professional organizations, such as engineers' clubs, chapters of the American Institute of Architects, etc. Where data are not available, local surveys under competent directors should be made. The need for data of an accurate character and with authoritative backing cannot be too strongly stressed.

The failure to secure such basic data prior to a campaign for new legislation has often had the result that the labor to secure legislation has been wasted and the reaction has weakened future campaigns even though better planned.

Before proposed legislation is introduced, controversial points should be ironed out with interested parties, so that potential opposition to its passage is eliminated, if this can be done without too great concession.

Timeliness Factor in Presenting Proposed Legislation

Consideration ought to be given to the importance of introducing bills for state legislation early enough in the session to receive careful consideration; and to the importance, in connection with local ordinances involving any expenditure of public funds, of securing the enactment of such ordinances in time to have the funds included in the annual municipal budget.

An important element in the timeliness factor of proposed legislation is the educational work conducted long before the introduction of bills. Legislators are only partly influenced by concurrent publicity. Hence, the groundwork for favorable action by a legislative body is in a publicity campaign sufficiently in advance of the session so that the thought is not implanted in the minds of the legislators that such publicity is simply propaganda. Publicity, whether of the press or pamphlet variety, is effective when carried on without the suggestion that legislation is in contemplation. It should be developed from six months to a year before the legislature is to be asked to pass upon a bill. At that time the public and the legislators absorb the facts as facts. They are news. The legislators become familiar with the conditions that need be remedied. Frequent reiteration drives home such

facts and they become a part of the knowledge of the legislators. As a result, when the bills are before them, the legislators have a background of knowledge which is their own, and which leads them to acquiesce to a statement of the facts.

Timeliness in introducing legislation is also associated with periods of disaster, epidemics, extravagance in government as revealed by exposures of malfeasance in office, of graft, etc. The present period of widespread economic depression gives special timeliness to certain kinds of local legislation—ordinances, for example, requiring the demolition of unsafe or unnecessary buildings as a means of promoting the public health and safety, and giving work to the unemployed, and reforms in the various states in methods of real estate taxation and in the financing of what are optimistically termed real estate “securities,” which would prevent repetition of the scandalous speculation in such securities which preceded the present depression.

Technique in Bill Drafting

It cannot be too much stressed that legislative committees need legal advice. They should aim to secure the assistance of that type of lawyer who is prepared to help in blazing new trails rather than one who retreats whenever he finds some traditional undergrowth in his path. Special help may also be secured in drafting legislation from state legislative bureaus, state leagues of municipalities, and bureaus of municipal research. Irrespective of such assistance, the following essentials must be borne in mind when legislation is being drafted:

1. Constitutional requirements as to form and phraseology.
2. Values inherent in legal phraseology previously reviewed and sustained by court decisions; and avoidance of such phraseology as has failed of court approval.
3. Importance of “repeal” clauses. These should be carefully drafted so that they cover the intent of such clauses:
 - (a) If intent is to supersede previous laws;
 - (b) If intent is to have concurrent authority, changing only such previous phraseology as permitted lower standards;
 - (c) If intent is to supplant existing laws but not changing their coverage or modifying their standards.
4. Importance of careful drafting of penalty clauses to see:
 - (a) That penalties fit the offense, neither so light as to make violators

indifferent to conviction, nor so heavy as to discourage courts from inflicting necessary penalties;

(b) That penalty clauses apply to all violations of requirements of the act and to regulations set up under the authority of the act;

(c) That the courts be given large discretion as to penalties;

(d) That summary proceedings may follow minor infractions, or that where civil action to recover fines is proposed, the language of the act is clear.

5. Making the language of the act clearly definitive of the purpose. Mandatory provisions, for example, should be expressed in mandatory language, i.e., "shall" to be used instead of "may," and in certain types of acts where many sections are incorporated, as in housing and building codes, the use of the word "shall" to be defined as always mandatory and not permissive.

6. Definite placing of responsibility. Where administrative machinery must be set up through state law, the act should be explicit and the obligation placed on the municipality or its officials should be so phrased that compulsion through the courts may be invoked if the municipality fails adequately to put the act into effect.

7. Logical framing of the act—segregating in each chapter or in laws of lesser scope in each section, or in a continuity of sections, all regulations or standards pertaining to one subject.

8. Facilitating ready reference. Where there are many and varied regulations embodied in the act, the printed copy should be set up with topical headings.

9. Adapting legislation to local needs. The practice of copying the standards or form of legislation in effect in other states should be avoided unless:

(a) The provisions of the constitution of such state are compared with those of the state wherein the proposed law is to be initiated;

(b) The conditions which forced compromises in the pattern law are analyzed so as to determine whether the cause for such compromise would not prevail in the state and hence could be omitted, and, further, if the standards proposed in the bill are as high as the standards prevailing in local practice.

Technique in Promoting the Passage of Desired Legislation

Care should be exercised in introducing bills to see:

1. That the member of the legislature chosen to introduce the bill is influential in legislative and party councils and is a member of the committee to which the bill will be referred.

2. That he is not already sponsoring, or likely to sponsor, antagonistic bills.

3. That he understands the provisions of the proposed bill and is convinced of its importance.

4. That he is supplied with practical arguments and supporting data concisely expressed so that he may advocate intelligently the desired bill.

5. That his constituents are advised that he is sponsoring the bill and that they commend him for his interest.

6. That all subsequent reference to the bill be linked up with the sponsor's name.

7. That the governor is favorably disposed to, or can be persuaded to advocate the reform in message or addresses.

Public hearings in committee are a disadvantage unless the opposition is strong and seemingly effective and is blocking the committee's approval. It is suggested that such hearing be attended by the most influential persons well prepared with data to prove the need for the bill and capable of presenting such data in a clear manner.

Advantage should be taken of the rules of procedure to get the bill out for first reading at the earliest moment. Under the legislative rules of some states, for example, if there is doubt in the minds of the committee to which a bill has been referred, it may be referred back for further consideration after it has been reported and given a first reading. This places the bill in a strategic position so that it can be called up at any time. Success will follow more certainly if a representative who is promoting the bill is familiar with legislative practices and is on hand to advise with and help the sponsor. He should see that during no stage of its passage the bill is referred to a hostile committee where it might be "pigeonholed." Interest shown in its progress by its proponents reflects a public demand and furthers its early favorable consideration.

Methods of Assisting Favorable Action

Some of the methods which have aided in securing favorable action on various subjects by state and legislative bodies are:

1. Securing the endorsement of as many different groups as possible.
2. The use of the newspapers, movies, radio, etc. In cases where the newspapers cannot be induced to give adequate space to legislative proposals in their regular news columns, publicity can usually be secured by "letters to the editor" over the signature of prominent citizens of the community.
3. Addresses before meetings of chambers of commerce, service clubs, women's clubs, labor organizations, and other influential groups.
4. Securing the support of leaders of political parties, if this can be done without too much compromise.
5. The use in the newspapers or circulars, of photographs of bad conditions which it is desired to remedy, and of good conditions elsewhere.

6. Emphasis on the fact that the main purpose of housing legislation is protection rather than restriction.

7. Securing the appointment by the governor or mayor, if sympathetic to the proposal, of a carefully selected citizens' advisory committee.

The foregoing suggestions have to do more particularly with legislation in which early action may be secured by an aroused public opinion. Recognition must be given, however, to the fact that housing reform is a long-time job, and that there is need for more attention to the subject in the high schools and colleges. The national housing body or other national associations functioning in any special field of the problem might render important service in the preparation of textbooks or pamphlets for school and college use.

More consistent efforts than heretofore ought also to be made by the friends of housing reform in securing the cooperation of national and state organizations in various lines of business and civic activities and of municipal health and building inspection officials. It is believed that many such organizations would welcome the suggestion that a place be given on their program to a speaker competent to present some phase of the housing problem of interest to their members.

Technique in Procuring Sane Enforcement after Enactment

Effective enforcement requires constant vigilance by local housing associations and other citizen groups, and such activities as:

1. Educational work among the offenders or those who try to evade the law.

2. Special efforts to educate the public officials responsible for enforcement who should have been taken into the confidence of the proponents of the bill prior to its enactment, so that they may be put into a sympathetic mood.

3. Publicity for all court cases where convictions are secured. If such convictions are brought to the attention of the press by the enforcing official, the news will be widely disseminated that violators of the law are not only subject to prosecution, but actually convicted and penalized.

4. Making sure that enforcement officials and interested groups know of the enactment of new laws affecting housing, and have ready opportunities to familiarize themselves with the provisions of such laws.

5. Special efforts to secure the election or appointment to administrative positions of men with an intelligent understanding of the housing problem. This should include particular attention to the caliber of men appointed as local building inspectors and as members of zoning boards of adjustment.

6. Urging the inspection of maintenance of dwellings, especially multi-family buildings, by fire departments, health departments, etc., to discover and remedy violations of local codes and ordinances.

7. Securing the cooperation of large-scale real estate developers and of social welfare organizations in establishing and maintaining high standards of sanitation and upkeep in low-cost housing developments.

In addition to such important details as above enumerated, those interested in better housing in many cities would do well to take greater interest in the structure and efficiency of their local governments. It is believed, for example, that a study of the relationship of municipal governments to housing betterment would show that, in the cities having a simplified form of government, greater progress has been made, or can reasonably be expected, than under the more cumbersome forms of city charters.

Finally, the fact must not be overlooked that programs for better housing cannot be satisfactorily promoted without the aid of well-organized, and efficiently manned, civic associations. Such organizations, working in the field, could study conditions and trends, create public opinion, and set in motion legal forms of control and direction as well as other-than-legal forms which exert economic and social pressure. For real results, this great movement must eventuate in effective national organizations for transferring ideas and wishes into houses and communities. Some such organizations are now functioning in parts of the Conference field. They need to be strengthened. But they do not include in their various agendas all the phases of the problems being considered by the Conference. There is the need, therefore, of the early building up of a permanent and adequately financed civic organization, nation-wide in scope, which will help correlate work now being done by existing agencies and which will assure and maintain vigorous leadership in those parts of the field not now covered, helping also in the promotion of state and local groups.

V. Appendices

The appendices referred to in this report appear in multigraphed form only and are on file with the Division of Building and Housing, United States Department of Commerce. Inquiries relative thereto may be addressed to the division.

Appendix I—Legislation and Administration Practices, by H. J. Baringer, A.I.A., Special Consultant.

This appendix is divided into two parts. Part I deals with Administration Technique, and Part II, with Landlord and Tenant Laws.

In Part I there is a discussion of a questionnaire sent out by the committee which is analyzed along the following lines: Origin of legislation; problems of drafting legislation; sources of legislative enactments; present laws too detailed; functions of local boards and of enforcing officials; need for latitude in enforcement; combining correlated functions; administrative problems; administrative personnel; centralizing of permit and inspection service; the administrative budget and permit fees; evasions of the laws; penalties; inadequate bureau records; interdepartmental cooperation; public cooperation.

In Part II there is a discussion of laws pertaining to occupancy; court control and occupancy permit; lease forms lack standardization; the protection and fairness of leases; uniform lease form receipts; legal aspects of leases; public liability; lease covenants and owner's right to levy; tenability and termination of leases; unusual lease clauses; agent's view of leasing procedure; administration of repossession; results of seizure or sale; questionnaire form; tabulation of replies.

Appendix II—"Administrative Technique—Building Codes," by John W. Oehmann, Inspector of Buildings, Government of the District of Columbia.

This appendix considers the following: The administrative office; powers of the administrative office; appellant boards; co-ordination and centralization of enforcement; size of enforcement office; personnel; permit office administration; approval of plans; completion or occupancy permits; inspection; files and filing systems; compliance or noncompliance orders; penalties; dangerous and unsafe structures; fees; promotional work of civic organizations; assistance of documentary or other resources.

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CHAPTER VIII

THE STANDARDS AND OBJECTIVES OF HOUSING

I. Introductory

If the American home is to survive it must fit the needs of the average American family with growing children. It must be something much more than shelter. The first primal urge of man for a home was for shelter from the elements. The second was for seclusion, privacy, retreat for his mate and his family—protection from his enemies. It is a far cry from that type of home to the home of today.

Thousands of children in this country have never known the meaning of the word "home." Due to faulty home conditions many have faced the world with an adverse handicap and equipment.

From many homes come "problem children" who never adjust themselves to society, and many of whom fill our prisons and jails, our insane asylums, our institutions. Brought up in this kind of a home, how can there be among its inmates a love of home or love of country?

All values are based on human values. Conditions that destroy or raise human values destroy or raise property values.

Today in many cities there are vast districts, blighted areas and slums, that not only destroy character and lower the self-respect of their inmates, but decrease values and ultimately destroy the whole community, placing intolerable burdens upon others.

There has been a very startling trend in recent years in America away from the private house to the larger multiple dwelling. The tendency is an unfortunate one. In the minds of many it threatens American institutions.

The social consequences of the "passing of the home" are already apparent. To lack of space, order, privacy and comfort may be traced many tendencies in present-day existence in America.

The great majority of the homes that are being built in this country today are not worthy of the American people.

They are still being built according to an ancient formula. The great advances that have been made in the science and art of building, the newer knowledge that has come to us with regard to matters of health, the new value of light, for example, have thus far found no embodiment

in American homes. The great majority of homes are being built today as if none of these things had been learned.

If progress in housing is to be made, therefore, it would seem that the time had come when the Objectives of Housing should be clearly stated. By such Objectives is meant the ends sought to be attained by effort in the Housing field—the results to be achieved through home building and home ownership and through all the other aspects of the human activity that one is wont to describe by the term, "Housing."

Those Objectives have never been clearly or definitely stated, though, undoubtedly, they have been subconsciously in people's minds. An attempt is made to state them here. It is hoped that this statement may prove helpful, not merely in clarifying the subject for those who may become interested in it, but as pointing the direction in which future effort should tend.

If the home of the future is to avail itself of the newer developments in the art and science of building, in the more recent knowledge that has come to us of the laws of the universe and human existence it is obvious that standards of housing should be set up.

Without such standards little progress can be made. There must be a generally accepted agreement as to what constitutes the right kind of homes for our people. One reason for the present unsatisfactory situation with regard to the homes of the American people, particularly the working people of this country, is due largely to the fact that there have not been such accepted standards.

The Standards that we have in mind are not merely Standards that will sustain life, that will furnish just enough air to avoid asphyxiation, or just enough light to enable human beings to live with, or just enough space in which to find shelter.

We are not concerned with setting up the minimum standards attainable, nor have we conceived it to be our function, nor do we feel that much good would result from a statement of *such* standards. It is the universal experience that the minimum standard in a short time becomes the accepted standard.

What is suggested here, therefore, has been to set before the country those standards of living that should prevail to make the American home of the future worthy of the American people.

It is fully realized that all of these standards cannot be achieved at once. It is also equally realized that for many families in America these standards today seem to represent a counsel of perfection.

On the other hand it is believed that the Standards set forth here, should not be incapable of attainment by the American people. They represent the kind of home that the American people should have—the kind of home that the American people can have, once they set their mind to it and realize the advantages of such homes. We do not believe that the great mass of the American people prefer the kind of homes that they now put up with—the only kind of homes they can get.

We believe fully that the American people want the very best in housing as they do in all other human relations.

That that best can be obtained, we have no doubt.

II. Objectives of Housing

The House—Its Design and Construction

The American home should be so designed, constructed and equipped, that the following objectives will be attained:

DESIGN AND CONSTRUCTION

- DESIGN :
- That it will provide the physical conditions necessary for the health, safety, contentment and happiness of family life.
 - That it will be designed primarily with regard to the efficiency of its functioning as a home, rather than for its architectural appearance, though not neglecting that aspect.
 - That its design will exemplify simplicity, honesty, fitness, harmony and restfulness—the fundamentals of “architectural good manners.”
 - That it will avail itself of those advances in the arts and sciences that make for the enrichment of life.
 - That its design will relate itself to scientific methods of house construction, to the use of new materials, new units of construction, and new methods of production and assemblage of materials, to the end that the cost of small dwellings may be brought into line with values obtainable in other basic commodities, and that artisans and other laborers may be enabled to produce homes at prices they themselves can afford to pay for a home.

CONSTRUCTION:

That its construction will have in view the following objectives:

A sound and durable building. One hundred per cent value is due the home owner.

The production of the building at the lowest cost compatible with sound construction and fair wages to workmen and fair profit to the builder.

The elimination of antiquated and uneconomical ideas that tend to increase cost and, subject to local needs, the acceptance of new ones that tend to decrease it, such as:

A simple plan rather than a complicated one; a plan coordinated with the materials used; the elimination of unnecessary cellar and attic space; more economical foundations; the use, whenever feasible without detriment to the design, of stock sizes of material; standardized doors, windows, and moldings; the location of plumbing fixtures to avoid unnecessary length of pipes; more efficient location of heating apparatus; spray painting when economical; shop-fabricated kitchen units and other interior equipment; elimination of back stairs¹; a lesser number of interior partitions and doors; central heating plants; the use of well-seasoned lumber; building machinery; equipment that saves labor.

The reduction of cost by the general adoption of "winter construction"—building when the home owner is ready to build and not when everyone else is. The home buyer is now burdened with a charge for plant and labor idle for $\frac{1}{4}$ of the year. Custom rather than climate now controls.

The assurance of sound construction and of full value by the use of materials certified and graded as to quality, protected by trade-marks and guaranteed by the producers.

¹ See "Housing and the Community—Home Repair and Remodeling," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. VIII, Pt. I, p. 62.

The reduction of costs by :

The Standardization of specifications as to materials; the elimination of numerous and unnecessary varieties or products; the use of shop-fabricated units of construction, as for instance, prefabricated windows set in frames completely fitted, weather-stripped, screened and with window brackets attached; the use of shop-fabricated buildings; the use of mass production; the elimination of waste in distribution, cutting and fitting; the purchase of raw materials in quantities; the greater use of prepared products, where advantageous, as for instance, ready-mixed concrete, mortar and plaster; a sounder credit system for purchase of materials; economies in storage, delivery, handling and protection of materials on the job; constant, continuing and coordinated research as to new methods and materials, with their use based upon disinterested scientific tests; the reduction of insurance charges and depreciation expenses by the use of more fire-resistive materials, and greater compliance with insurance underwriters' requirements; the greater use of noncorrosive materials.

The securing of buildings of better quality as well as the reduction of costs by scientifically conceived and executed building codes that do not penalize sound methods of construction or the use of new materials, and that are based upon performance and scientific disinterested tests.

Soundness of the investment in a home, and insurance against its premature depreciation, by a system of certifying buildings to the home buyer and home owner by the institutions financing the construction, as well as by the builder and building material producers—thus giving the home buyer a "certified" house.

Among the advantages of such a system are :

Guarantee to the home buyer of a well-built house of good quality materials; better security to lending agencies in case of foreclosure and repossession of property; higher percentage of lending for senior and junior financing for longer periods; better-built communities, reduced fire hazards and protection from blighted districts; increased saleability of homes and assurance of a steady market for such property; better price for the property because of its sound character; good will and restoration of the confidence of all interested in home building and buying, and a resultant increased activity in the building field.

LIGHT :

That it will be well lighted, as sunlight and sky light kill germs and promote cleanliness, and are particularly valuable to the growing child.

That there will be no dark corners where dirt can accumulate.

That the therapeutic ultra-violet rays of the sun, which are so beneficial to health, will freely enter all rooms.

That no room will have solely a north exposure, unless its window area is increased by at least 50% over the normal amount.

That light will penetrate deeply into rooms.

That natural resources of light may be utilized to the full, and artificial equipment used only as supplementary and not as a substitute.

That artificial lighting will be unnecessary in any room during daylight hours.

That the artificial lighting will be sufficient in amount and so located as not to cause eye strain or produce mental irritation.

AIR :

That it will be well ventilated, with no confined spaces where the air cannot freely circulate, and with free movement of the air assured by cross ventilation.

That natural resources of ventilation may be utilized to the full and artificial or mechanical equipment used only as supplementary and not as a substitute.

- That it will be so located that its occupants may breathe, both night and day, only air that is free from smoke, dust and other impurities injurious to health and well-being.
- HEATING:** That it will be properly heated—neither too hot nor too cold, neither too dry nor too moist. That room temperatures will be so related to air movement and moisture content as to promote comfort and health.
- INSULATION:** That it will be properly insulated against dampness, heat, cold and noise.
- KITCHENS:** That the kitchen—the domestic work shop—will be so designed as to make possible the preparation and serving of food, with its ancillary labors, with the least possible waste of time and effort, and with a minimum of fatigue.
- PLUMBING:** That it will have sufficient and sanitary plumbing in convenient locations, properly protected and connected with the drainage system.
- SAFETY:** That it will not be a source of danger to its occupants, from fire or other hazard, nor a menace to its neighbors or to the community.
- WATER SUPPLY:** That there will be an ample and conveniently located supply of pure potable water.
- WASTES:** That there will be suitable facilities for temporary care of household wastes, pending their removal from the premises.

TYPES OF HOMES

There should be enough dwellings of the various types, within the means of different income groups, to adequately meet the needs of the community.

The one-family house, preferably detached, best serves the needs of families with children.

Other types ranging from the one-family house to the Multi-family house, and even the hotel, serve the needs of others.

The Home's Environment—The Community

The American home should be located in a community and neighborhood so designed and organized that the following objectives will be attained:

ORIENTATION: There will be secured for every home a maximum of sunlight and sunshine in all its rooms, by so designing the street system and the layout of property that houses will have the proper orientation.

LIGHT: There will be assured adequate light and air to all homes by prescribing through laws the minimum sizes of all open spaces in relation to building height, thus indirectly preventing too intensive land occupancy.

LOT SIZES AND LIGHT: Sites for homes will be on lots of such size as to insure adequate light, ventilation, open space and gardens—and yet not so large as to be wasteful of land or unnecessarily expensive to develop or maintain, nor to encourage too intensive occupancy of the land by additional buildings.

LONG BLOCKS: The right kind of home will be brought within the means of the average family by keeping land costs down, through intelligent and nonwasteful planning—by means of long blocks eliminating unnecessary streets, thus saving not only the cost of street development and maintenance, but in cost of utilities as well.

HOMES SEPARATE FROM APARTMENTS: Private residence areas will be kept free from the conditions attendant upon the larger and more densely occupied buildings, by establishing separate districts for one-family houses and multiple dwellings—assigning to the more concentrated forms of housing those portions of the community best suited to them, generally near focal points of transportation.

LAND OVERCROWDING: Too intensive occupancy of the land will be prevented by appropriate property subdivision and by zoning and other regulations limiting density of occupancy.

- BUILDING LINES:** Peace and quiet and a pleasant and dignified mode of living will be secured through the establishment of building lines which automatically result in the setting back of homes from the noise of the street.
- OPEN SPACES:** The proper distribution of buildings and open spaces will be brought about and a constant ratio between them maintained so that when more intensive building is permitted it will be compensated for by automatic increase in open space.
- HOME OWNERSHIP:** Home ownership where appropriate will be encouraged.
- CONSERVING NATURAL BEAUTY:** Residential areas will be developed with relation to topographical conditions, and valleys, ridges, streams, woods and fields will be utilized to best advantage.
- GARAGES:** Residential districts will be so developed that their garage needs can be met without undue inconvenience to the residents, without encroaching upon street space required for traffic needs, and without spoiling the amenities of the neighborhood.
- ADVERTISING SIGNS, ETC.:** The amenities of residential districts will be preserved by keeping out of them disfiguring and inappropriate advertising signs.
- CONTROL OF SUBDIVISIONS:** Through regulations controlling the subdivision of land, residential districts will fit into a well-ordered, comprehensive and harmonious plan for the development of the community as a whole.
- UTILITIES:** Through such regulations home dwellers will be assured of the necessary utilities that make a civilized urban existence possible, such as water supply, sewers, paved streets, grading, lighting, heat, power, etc., and will not be forced to pay unduly for such developments through undisclosed and later-revealed assessments.
- UNRIPE LAND:** Through such regulations the sale of land for urban development that is not ready for it will be prevented. By this means the home buyer will be saved a burden of expense that should be borne by the developer.

- RECREATIONAL NEEDS:** The recreational needs of the community will be met by providing, at proper locations convenient of access to the residents, such facilities for sport and recreation as country "reservations," large parks, small parks, playfields, boys' and girls' outdoor gymnasiums, school playgrounds, children's playgrounds, tennis courts, golf courses, swimming pools, wading pools, skating ponds, etc., as well as play-space for small children in individual yards or in several yards thrown together.
- STREET SAFETY:** The safety of children will be insured by so designing the street system that no child will have to cross a street at grade in order to get to school or playing field.
- ELIMINATE THROUGH TRAFFIC:** Peace and quiet will be brought to residential districts by so planning them that they will not be traversed by through traffic arteries, but short service streets adequate for neighborhood needs will be developed.
- TRAFFIC ROUTES:** Traffic and transportation routes and terminals and parking places will be so located as to give a well-balanced distribution of industries, shopping centers and business areas, and permit the location of residence districts within convenient distance of employment.
- LOCATION OF RESIDENCE DISTRICTS:** Residence districts will be located with reference to their accessibility, their coordination with each other and with business and industrial districts, the suitability of the site for residence purposes, and the facilities and amenities provided within these districts to make for wholesome, healthy and satisfactory family and community life.
- COMMUNITY NEEDS:** Home areas and the allotment of land uses will be designed with reference to community needs, while not neglecting individual desires.
- RUS IN URBE:** The benefits of country life along with the advantages and conveniences of urban living will be obtained.

- STABILIZED NEIGHBORHOODS:** Neighborhoods as well as property values will be stabilized—thus preventing economic and social waste.
- COMMUNITY GROWTH:** The growth of the community will be planned not merely for expansion at the edges but so as to preserve and increase the amenities and advantages of the more central and older residential areas.
- PHYSICAL DEVELOPMENT:** By the adequacy of its street and circulation system, its open spaces, its protection against adverse uses, there will be brought about a physical development that will favorably affect the quality of life of the community.
- NEIGHBORHOOD UNITS:** Neighborhoods will be developed in "Neighborhood Units" along organic lines as self-contained residential communities free from disturbing noise, industry, traffic and odors, and provided with adequate educational, recreational, social, cultural and shopping facilities and the other amenities of civilized living.

The Landscape—Its Planning and Planting

Every American home should, where feasible, be situated in surroundings of natural beauty that make a fit setting for it.

The design and planting of the home grounds should have as objectives:

The securing of beauty, privacy, shade, freedom from dust.

Their relation to the size and shape of the lot, its topography, the desirable orientation as to wind and sun.

Harmony and proportion—not only with relation to the house as the central feature, but with consideration for neighboring and street conditions.

The ultimate appearance when plants and shrubs have reached their full growth.

Due recognition of the relative needs of the approach to the house, of service areas, of areas for pleasure, and of the value and advantages of outdoor living.

The avoidance of interference with access of light and air.

Home Embellishment—Its Furnishings and Decoration

The American home should, through its design, its furnishings and its decoration, provide a restful, harmonious and characteristic atmosphere that will achieve the following objectives:

- UTILITY— Found in the comfort and efficiency of its functioning.
- BEAUTY— Found in a setting of restfulness and cheerfulness.
- INDIVIDUALITY— Found in its appropriateness to the personality of the family whose home it is.
- ECONOMY— Found in an appropriate relation of expenditure to the family income.

The Home—Homemaking

Homes should be so designed, organized and managed that the home will be:

- A place of serene, peaceful, happy, and harmonious family life, where each member of the family will find rest and sanctuary from the stress of life outside.
- A place where each person may enjoy privacy, the opportunity to be alone, to invite one's soul, to grow according to the best that is in one.
- A place where those allied by ties of birth may develop as a unified family—as an important unit of society.
- A place of spiritual and intellectual development where music, Nature, literature and art perform their functions in the enrichment of life—in educating, solacing and recreating the individual.
- A place where social life with neighbors and friends may flower and develop, where good manners and the amenities of civilized existence may flourish.
- A place of safety, wholesomeness, health, cleanliness, order, cheerfulness, tranquillity, comfort, restfulness, attractiveness, spaciousness.
- A place where the processes of living and the common tasks of daily family life may be performed without waste of time or effort and with a minimum of friction.

Financing the Home—Ownership, Rental, Income, Taxation

Home ownership should be encouraged for those families competent to own homes so that there may be induced thereby:

- Better home life for children; a feeling of security and permanence; a greater interest in and use of the home; better social standing; the pride of possession; greater interest in govern-

ment; the habit of saving; something to realize on in case of need; stability of investment; an incentive to work for.

To encourage and facilitate home ownership by those competent to own a home, Home Financing should have as its objectives:

The supplying to the borrower at the lowest cost to him of the highest initial loan consistent with safety to both borrower and lender.

The separation by bankers of long-time investments from short-time commitments, thus making funds more available for investment in homes and not subject to demands that must be met with quicker assets.

The establishment of banking machinery throughout the nation on sound and conservative lines that will make unnecessary the high and usurious charges that now have to be paid in interest rates, "commissions," fees and otherwise for the junior financing of homes.²

The financing and building of homes of all types should be so arranged and organized that

Home ownership may be available with a minimum of attendant risk to every family in the United States competent to own a home, on terms that do not involve the starving of the family budget in such essentials as savings, health, recreation or education, and yet preserve adequate standards as to housing.

Adequate housing may be procurable at rentals that leave enough of the family income for other fundamental needs.

Taxes should be so imposed and methods of taxation so organized as to remove unfair burdens from dwellings.

Home Information Centers

In every community the fullest information as to homes should be available to everyone. Home Information Centers should be established to that end. In their organization the following objectives should be sought:

² A resolution was adopted by the Conference, endorsing the suggestion of President Hoover for the establishment of a system of home loan banks. The President's statement appears in "Home Finance and Taxation," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. II, and the resolution appears in this volume, p. 21. This suggestion culminated in the enactment and approval on July 22, 1932, of the Federal Home Loan Bank Act, providing for the discounting of first mortgage paper by financial institutions which are members of the home loan bank system. (Public Act No. 304, Seventy-second Congress.)

- I. Generally, to provide the possible resident with all the information essential to his intelligent decision of two questions:
 1. Whether or not to locate in the community.
 2. In what part of the community to make his home.
- II. To provide general information as to the Community, including:
 1. Composition and trends of the population, racial, religious and social groups—ratio of owned homes and percentage of apartment dwellers, and areas in transition.
 2. Location of schools, standards and systems of instruction, equipment, personnel, school board policies regarding expansion of systems, budget, school taxes, per pupil cost, parent-teachers' associations.
 3. Social life, clubs, civic and fraternal lodges and associations.
 4. Neighborliness of various sections of the community.
 5. Recreational facilities—movies, theatres, music, golf, tennis, football, baseball, boat and swimming clubs, indoor and outdoor winter sports—and their cost and accessibility.
 6. Quality and variety of goods carried in stores, customs of credit, delivery, local services such as laundries, and local shopping habits.
 7. Utility services, rates, extent and adequacy of water, sewer, gas, electric and telephone service, charges and installation costs, extent of central station heating.
 8. Traffic flow, paved road systems, mileage and time-distance to work and shopping centers.
 9. Adequacy of transportation service—fares, commutation rates and time-tables, by railroad, interurban electric, plane and bus, and street car; freight and express rates by land, air and water, and their routes.
 10. Banking, building and loan and other credit facilities, minimum deposit requirements and interest rates.
 11. Labor and material costs and labor practices on household repairs.

12. Protection afforded by building and plumbing laws, by zoning regulations and by the city plan.
 13. Adequacy of police and fire fighting forces, fire limits, insurance rates, fire hazards and fire prevention services.
 14. Assessment methods and habits, percentage of true value, state and county equalization rates, tax payment dates and penalties, policy as to special assessments.
 15. Organization and efficiency of local government and per capita cost.
 16. Community chest and charitable organizations, budgets, methods of solicitation, type of service rendered.
 17. Health department regulations—inoculations, vaccinations, hospital services, costs and practices, number and types of doctors and prevailing charges for office and house visits, confinements, etc., nursing services.
 18. Churches—denominations, locations, size of congregations, financial status, church schools, growth and friendliness.
 19. Servants' wages and part-time domestic services. Supply and availability.
 20. Industrial plants, number, variety and location of nuisance industries, prevailing winds, fire and explosive hazards, flow of truck and railroad traffic.
 21. Location of garbage incinerators, public dumps, ashes and garbage removal and disposal, swamps, river flood conditions, etc.
 22. Climate, rainfall, snow, summer heat and winter temperatures, coal consumption per dwelling, snow removal.
 23. Extent and manifestations of local pride and community spirit.
 24. Condition of real estate market, extent of vacancies, rent changes, number and types of new housing construction.
- III. To provide the home seeker with information as to approved real estate agencies, builders and management concerns.

- IV. To furnish residents with information as to reconditioning or modernizing of their homes, as to housing standards and other aspects of housing and home life.

The Reconditioning of Homes

Those American homes that need it and warrant it should be reconditioned and modernized so that they will:

Provide a proper setting for happy, normal family life and the development of good citizenship by having the home attractive, comfortable and labor-saving, affording opportunity for meeting the individual and group needs of the members of the household.

Protect the health and safety of the family through keeping the home wholesome, sanitary and free from unnecessary fire hazards and other dangers.

Provide a larger supply of safe and sanitary dwellings to meet the needs of the small-income groups not now served by new houses.

Preserve or increase sale and loan values through prevention of depreciation or obsolescence and through improvement where practicable.

Afford a demonstration of the possibilities and value of results in reconditioning, remodeling and modernizing.

A PROGRAM FOR RECONDITIONING

This involves:

1. The development of intelligent and economical methods in such work.

Basing plans on adequate information of desirable methods in reconditioning, remodeling and modernizing.

Systematic inspection in order to do needed work before damage to property or person may occur, and to plan work for times when it can be done with least expense and inconvenience.

Careful estimate of the cost of needed work.

Judicious and safe financial arrangements for such undertakings.

Avoiding discouragement of home buying through prospective home owners securing information as to probable cost of upkeep that they may not undertake more than they can handle.

2. Discouragement of unwise reconditioning, remodeling or modernizing and of injudicious financial arrangements for the work.
3. Popular education as to reconditioning, remodeling and modernizing.
4. Well-advised appraisal of home grounds and neighborhood and study of future to determine to what extent work is justified.
5. Enlisting the aid of every interested agency in educational service to families and communities as to needs, possibilities and desirable methods of reconditioning, remodeling and modernizing and as to proper financing of such undertakings. Setting up information centers where possible.

Slums and Blighted Areas

The American community should free itself of blighted areas and slums so as to bring about:

1. The elimination of dangerous conditions and the demolition of structures in areas that are an economic, health and social liability to the community, and the redevelopment of such areas in accordance with good city planning and housing practice.
2. The improvement of structurally sound individual houses that warrant reconditioning on an economic basis.
3. The restoration of family welfare and of the earning capacity of dwellers in substandard areas through the improvement of housing conditions.
4. The conservation of municipal funds by:
 - (a) Restoring neighborhoods so as to recreate taxable values that were lost when the slums developed.
 - (b) Continuing the normal use of public improvements in such areas that represent invested municipal capital.
 - (c) Curtailing the demand for similar improvements in other and undeveloped areas arising from ab-

normal movements of population seeking better home environment.

5. The economic and social rehabilitation of slum families founded on a recognition that slums are often the dwelling places of an element of the population who, by their habits of living, low earning capacity, and place in the industrial and social scale, help to create slums—and who, therefore, should have special provision made for their housing adapted to their needs and limitations, and who often should be aided in adjusting their mode of life to improved surroundings and educated in better housekeeping standards.
6. The adoption of a comprehensive program that will prevent the future development of blighted areas and slums.

Employers' Housing

Employers of labor, especially where the plant is large and is located away from centers of population, should undertake the housing of their employees, so that:

There may be less labor turnover with its attendant economic loss.

There may be greater efficiency in both the quality and quantity of the goods produced.

They may have a happy and contented force of employees, serene and comfortable in their homes, with a quickened interest in the community and the industry.

III. Housing Standards

The House—Its Design and Construction

If the following Standards are observed in the Design and Construction of the homes of the future, Americans in time will have homes worthy of a great people.

- AIR:** There should be free movement of air throughout the house. Every room should have adequate natural ventilation. Cross or through ventilation should be had, either by placing windows on two sides of each room or by having doors or transoms so placed in line with windows that there will be a moving current of air.

Good natural ventilation involves ample provision for the intake of outside air, for the removal of used air, and for keeping air continuously in motion. This should be possible without sacrifice of privacy and the use of artificial systems of ventilation should not be necessary.

**AIR CON-
DITIONING:**

4

In cities where conditions exist that cause abnormal temperatures there should be cooling systems capable of cooling apartments and homes to a temperature of from 12 to 15 degrees below the outside temperature. Proper dehumidification is a necessary accompaniment of any adequate cooling system.

Air should be kept from being too dry by simple humidifiers capable of maintaining a minimum humidity of 25% when the heating apparatus is operating.

BEAUTY:

Where houses are built from identical plans, individuality can often be secured through planting and through the use of window boxes, porch and garden furniture, etc.

If outdoor space for drying clothes is provided it should be properly screened so as not to render the neighborhood unattractive.

Ugliness, excessive ornamentation and unpleasant color combinations should be avoided. The best effects, ordinarily, are secured through simplicity in the architecture.

Paint and wall coverings should, in both color and texture, be cheerful, restful, attractive and not overstimulating. Woodwork and walls should be easy to keep clean.

CLOSETS:

Closet space should be ample for the needs of each member of the family and should be so located as to serve its purpose most conveniently.

The closet for outdoor wraps should be on the entrance floor convenient to the door and reached without passing through any of the rooms. There should be a separate closet for children's outdoor wraps, or

special provision should be made for them in this closet through low hooks and rods and low shelves or other special equipment for overshoes.

Clothes closets should be provided with rods and be of sufficient depth to freely take clothes hangers with clothes upon them.

Broom closets should be located in the back hall entry or kitchen.

Linen closets should be located in the back hallway of the sleeping quarters and close to the bathroom.

All closets should have doors and there should be knobs on the inside so that they can be opened by children.

DRAINAGE: The lot should be properly graded or drained so that there will be no standing water to breed mosquitoes.

ENTRANCES: In cold climates entrances should not be direct to living-room or kitchen. In general, direct entrance to the living-room is not desirable.

EQUIPMENT: The desirable built-in equipment includes kitchen cupboards, preferably flanking the sink, built-in ironing boards, a passway between kitchen and dining-room, china closets, bookshelves, window-seats with storage space underneath, shelves and drawers in linen closets, rods for clothes hangers in clothes closets, low drawers, cupboards and hooks for children's toys or other possessions in the playrooms or in the children's bedrooms—all of which should be planned with reference to convenience in use.

FIREPLACES: Where feasible, there should be an open fireplace in the living-room. An open fire adds cheer and draws the family together.

FLEXIBILITY OF DESIGN: Small houses often should be designed to permit flexibility of use by facility of alteration or extension to meet increased family needs.

FLOORS: Floors should be strong, smooth, tight and level, comfortable to stand and walk on, durable and easily cared for. In color, design and finish they should harmonize with the rest of the room. They may

be of wood, cement, tile, linoleum, cork or other composition, according to the purpose to be served. If of wood, the boards should be well-matched hardwood, preferably quarter-sawn. Tile should be laid on cement. Linoleum should be cemented to the floor over a layer of felt.

FOUNDATIONS:

Foundations should be so built that walls or footings are proof against unequal settlement.

FURNITURE:

The room should be so designed that there will be suitable space for the principal pieces of furniture and so that these will not be in the way of doors, windows or closets. The location of the furniture should be shown on the plan.

Radiators if recessed save space and permit access to windows. They should be screened so as to protect children.

Fireplaces should be located with reference both to appearance and the grouping of furniture around them.

Doors, windows and such immovable equipment as radiators should be so placed as to provide adequate wall space for furnishings appropriate to the room.

Particular attention should be paid in planning sleeping rooms so that beds will be properly located without interfering with cross ventilation.

There should be small chairs for children in the living-room. Furniture should be comfortable, and suitable in size and height to serve the needs of all members of the family.

Heavy, large furniture should be avoided in a small house. Rooms should not be crowded with furniture.

GARAGES:

Private garages and outbuildings should be easy of access, fire safe and so placed as not to interfere with the lighting of neighboring residences or with their attractiveness of outlook.

Garages built into houses should be adequately separated to insure fire safety and properly ventilated

and sealed so that injurious gases may not enter the other parts of the house.

- GAS:** Although emergency shut-off cocks are provided for all gas meters, they should be manipulated only by representatives of the gas company. Especially where high pressure gas is distributed, all manipulation of piping should be done by the representative of the gas company or other qualified experts.
- Only gas appliances bearing the seal of approval of the American Gas Association should be used.
- Open-flame gas jets should not be used. If absolutely necessary, they should not be located near windows or other places where draperies or curtains may be hung. Rules for installing gas appliances, based on the safety code, should be followed. As far as possible, flue connections should be made in accordance with local practice and regulation. When flexible tubing is used, only one shut-off should be provided and that on the permanent piping.
- GROUP PLANNING:** The house—particularly the small house—should be planned, where possible, so that, in addition to meeting the requirements of those who are to live in it, it may secure the advantages—economic, hygienic, social and aesthetic—of group planning.
- HEATING:** Heating appliances should be of such types and sizes as will heat all parts of the house adequately. As there is danger of overheating as well as of underheating, it is often desirable to provide for thermostat control.
- Provision for humidification is desirable. With a relative humidity of 40% and an air movement of about 25 feet per minute a temperature of about 72 degrees F. should be maintained.
- INSULATION:** Homes should be properly insulated against dampness, heat, cold and noise.
- KITCHENS:** Kitchens should be sanitary.
- CLEANLINESS:** Floors, walls and other surfaces, cupboards and storage places should be easy to clean and to keep clean.

Cupboards, storage places and other places should be mouse-proof and vermin-proof.

Rounded moldings and flush-cove joining of floor and walls, avoiding ledges that catch dirt, are desirable.

There should be a convenient and well-closed garbage container, easily cleaned.

Windows and doors should be screened against flies and other pests.

**LIGHT AND
AIR:**

The kitchen should be cheerful and attractive. It should not depress the housewife. There should be abundant natural sunlight and fresh air through windows and doors.

Cross currents of air are most desirable.

There should be a pleasant outlook from the windows.

There should be good artificial lighting for night, suitably located so as to reach all corners, and not glaring.

**LOCATION
AND SHAPE:**

The kitchen should be easy of access to the dining-room and preferably compact and rectangular in shape.

**ARRANGE-
MENT:**

The kitchen should be so designed, and its equipment and furniture so arranged, as to avoid lost motions, to save unnecessary steps, to "take the walking out of cooking."

There should be a "circular work center" from which most of the operations of preparing food can be carried on without change of location.

Working equipment should be so placed as to avoid unnecessary stretching or stooping.

The levels of all working spaces, as well as the height of stools and chairs, should be adjusted to the height of the worker.

Up and down steps to other floor levels on the same story should be avoided.

The larger built-in equipment should be grouped according to its use and arranged along the walls in a nearly continuous working surface.

Equipment not used in the preparation and clearing

away of meals should be grouped remote from the working centers. So should doors and closets.

Toe space under working surfaces makes for comfort and prevents body strain.

Work tables that move easily on rubber casters are essential.

Easy opening and tight closing of drawers, doors and windows are desirable.

MISCELLANEOUS:

There should be installed devices to carry off cooking odors and, where gas is used, to carry off the odors of combustion.

Floor coverings should be easily cleaned and resilient, yielding to the step.

Mechanical equipment and labor-saving devices that have proved their value should be utilized.

SIZE

Kitchens should not be so small that persons cannot pass easily, or that children will be bumped, turned or trampled; or that shelf room and table space will be so limited that constant rearranging of contents is necessary; or that cabinets and cupboards confine the heat about the head. One hundred square feet floor space would seem to be the minimum.

If the American home is to continue, the kitchen must be large enough so that daughters may be taught cooking, dishwashing, etc., and large enough to permit boys and girls to help their mother, and for children to be in it when necessary.

In the too small kitchen a woman is baked when the roast is done, and stewed when the soup is finished. She would not be fit to nurse a baby after that, neither would it be safe to allow a teething baby to sit at the table, while the mother works.

OTHER WORK CENTERS:

The laundry should be dry, airy, and well lighted. It should be comfortable, convenient and well equipped.

LAUNDRIES:

It should be so situated and arranged that odors will not reach the rest of the house.

DINING-ROOMS:

The "dinette" and the breakfast nook in the kitchen are matters to be determined by the needs of the

individual family. The nook saves time and steps, but discourages good table manners.

A living-dining room conserves space and the cost of an extra room, and can be managed with screens, tea carts, etc., but is not desirable for a large family. The dining-room that can be shut off during the day when not in use and used by children for study or table games at night has its place. When incomes permit, a separate dining-room is desirable.

LIGHT: The house should be so designed and placed upon the lot as to provide for adequate sunning and natural lighting of all rooms. There should be direct sunshine at some time of day in each room throughout the year. No room should have solely a north exposure.

No COURTS: That there may be adequate light, no multiple dwelling should be built more than 2 rooms in depth. There should be no courts or light shafts. Rooms should open only on the street, or on large yards or gardens, with no opposite wall a nearer distance than the height of the building.

WINDOWS: Each room should have at least one window, preferably two or more, opening directly on a permanent open space sufficient in size to admit adequate light and sunshine. The total window space should not be less than 15 square feet in area. Windows should be so constructed that they can be opened either throughout all of their area or at both top and bottom.

In buildings in which walls are unusually thick and in regions in which the smoke nuisance is prevalent, the size of windows should be increased beyond these standards.

LIGHT PENE- TRATION: For every room in which persons live, sleep or congregate, in order that light may penetrate the room sufficiently, the area of glass in the windows should be not less than 15% of the floor area of the room. Light should be able to penetrate through at least

half the depth of the room. Every room should be assured of natural light by the requirement of a 45° angle of light measured from the vertical to the sills of the room's windows. The tops of windows should be as near the ceiling as is consistent with good architectural design.

- LIGHT, ULTRA-VIOLET:** In future, as far as possible, the glass installed in windows of living-rooms and bedrooms should be such that it will transmit not less than an average of 25% of the ultra-violet rays in sunlight, between 2,900 and 3,100 Angstrom units.
- ARTIFICIAL LIGHTING:** Artificial lighting should avoid dangers from fire. Outlets should be sufficient in number and so located as to make it possible to engage in any kind of household activity such as cooking, serving of food, cleaning, play, or studying under conditions that are convenient and comfortable. It should not cause eyestrain. Too intense lighting should be avoided. Lights should be well shaded.
- MATERIALS: SOUNDNESS:** All materials should be sound and durable, of sufficient strength for the safe carrying of the loads imposed. They should be fabricated, prepared and installed in workmanlike manner so as to minimize depreciation and maintenance costs.
- SHRINKAGE:** The materials of construction should be of proper design, size, quality and fabrication so that there will be no appreciable shrinkage to render early depreciation either in water-tightness, fitting of moving parts or appearance.
- WEATHER-TIGHTNESS:** Roof, gutters, doors, windows and other wall openings should be weather-tight, not only immediately after construction, but for a reasonable period of time, without renewal or repairs. Walls should be water-tight against the most severe rains. Where soil conditions require it, foundation walls and cellar floors should be permanently damp-proof. Where there is no cellar there should be a well-ventilated space below wooden first floors to prevent dry-rot.

- INTERIOR DEPRECIATION:** Plastering should be well done and adequately re-enforced where there are any corners and in prominent places. Good quality and durability of painting should be considered as well as the color. Lumber trim should be well seasoned.
- TESTS:** Standards for physical properties of materials or assemblies of materials will be found in the Standards adopted by the American Standards Association, American Society for Testing Materials, American Gas Association Testing Laboratory, National Board of Fire Underwriters, National Fire Protection Association, the Dwelling House Recommendations and Minimum Fire Resistance Standards in Building and Plumbing Codes of the U. S. Department of Commerce, Recommendations of the National Committee on Wood Utilization, Joint Committee on Concrete, and other reports of technical societies and government agencies. These are gradually coming to have nation-wide recognition.
- PLUMBING:** Health protection in homes should be assured:
- By modern sanitary plumbing fixtures, noiseless, easily flushed and cleaned, and properly vented; by pipes of durable type with tight joints and traps readily accessible for cleaning and repair; by water-closets located in well-lighted compartments ventilated to the outer air, and never located out-of-doors.
 - By Plumbing Codes and Sanitary Codes scientifically conceived and enforced.
 - By adequate sewer systems, serving the built-up areas, to which all houses should be connected. In rural districts, where there are as yet no sewers, by the use of septic tanks of approved design.
- PORCHES:** Covered porches should not be so placed as to unduly reduce the natural lighting of rooms. No room should receive its sole natural light from windows opening upon covered or glassed-in porches.

PRIVACY: There should be adequate provision for privacy for each member of the family. Each child should have a place where he can be undisturbed and quiet and have opportunity for uninterrupted study of home lessons or for reading or play.

Old people should have a quiet, sunny room to which they may withdraw, if they desire.

The sleeping quarters should be sufficiently separated from the living quarters to insure privacy.

At least one bathroom should be reached from a private hall. Privacy should be provided by having each bedroom reached without passing through any other bedroom.

In two-story houses, the provision of a wash bowl and water-closet on the first floor is often desirable in addition to the bathroom on the sleeping floor.

In multiple dwellings each family should have its separate water-closet and bathroom, within the apartment.

**REFRIGER-
ATION:**

The refrigerator should be designed for thorough circulation of cold air. Proper insulation requires an efficient heat-retarding material of adequate thickness between inner and outer walls. This material should be compact, nondeteriorating, moisture- and germ-proof and odorless. All parts of the refrigerator should be easily cleaned. Proper drainage should be provided with permanent sewer connection. The drainpipe should be easily accessible for cleaning.

For mechanically cooled refrigerators further requirements are: Quiet, dependable, and economical automatic operation; minimum of service maintenance; freezing of water in a reasonable length of time; accessibility for repairs; freedom from wear of moving parts; safety of operation of exterior moving parts, of electrical apparatus or of burners.

The refrigerator should be level and should be placed in as cool and protected a position as is compatible with convenient service, and should be so constructed

that there will be no danger of injurious gases or vapors issuing from it.

- REPAIR: Construction and maintenance should be such as to prevent dilapidation and disrepair, such as loose railings, rotten boarding, etc. Special attention should be paid to the use of materials and methods of construction that experience has demonstrated to be safe, and to new materials and methods of construction that give reasonable promise of being satisfactory. Construction and maintenance should keep roofs and walls free from leaks, and rain gutters and leaders should be so placed as to prevent accumulations of rain water and should be made free from clogging and leaking.
- ROOM ARRANGEMENT: The room arrangement in the house plan should be such as to make it possible to avoid lost motions, to save unnecessary steps and facilitate housework. There should be relatively easy access from room to room but it should also be possible to close each room off from the others when desired. Common rooms such as living-rooms, dining-rooms and parlors should be planned, where feasible, to open together to make for spaciousness. For general family uses it should be possible to close off each room for privacy of individual members of the family and their guests.
- ROOMS: A sleeping room for each person is generally desirable.
- BEDROOMS: Sleeping arrangements should be made with due regard to uninterrupted sleep, health and reasonable privacy. It is undesirable to have two children occupy the same bed—whatever their age.
- ROOMS FOR CHILDREN: Some place should be provided as a playroom for children. In case the extra room cannot be afforded by the family, this may be either a corner of a bedroom or nursery or of some other room, or an enclosed porch, or, in the case of older children, a portion of a well-lighted and well-ventilated shed or attic. As the playroom is outgrown it can be

converted to some other use, appropriate to the needs of the family. Special provision should be made through low drawers and cupboards for children's playthings.

A nursery, if provided, should be light and cheerful. The walls should be of hard finish and walls and floors should be smooth and easily cleaned. It should be furnished with small chairs and tables.

The following detailed suggestions have been drawn up by teachers in the nursery schools maintained by Teachers College at Cornell University and are submitted as suggestions to families that are in a position to provide a special room for this use:

The floor area should be at least 84 square feet for each child. Artificial lighting should be high and indirect. If side lights are used they should be out of a child's reach and the light force should be shielded. Hardwood floors or floors overlaid with battleship linoleum or cork are recommended since most of the child's play is on the floor. The bed space for the children should be away from the area in which the toys are kept.

The nursery should be situated near a lavatory and near the mother's work center in order to save her time and steps and at the same time provide the child with necessary supervision. This room should be convertible to other uses when there is no longer need for it as a nursery.

ROOM SIZES: Rooms should be generous in size, not only sufficient to accommodate the furniture but large enough to give a sense of space. Rooms should be high, especially in hot climates, to insure coolness, adequate ventilation and the psychological benefit that comes from spacious quarters.

A living-room 12 feet by 15 feet—180 sq. ft. in area—is adequate for most purposes. Other rooms may be somewhat smaller if properly planned with reference to light, air and space needs. In private dwellings rooms 8 feet 6 inches high are permissible, but

in multiple dwellings nothing less than 9 feet should be permitted.

SAFETY: 4

Physical protection in homes should be assured:

By methods of construction that will reduce fire and conflagration hazards to the minimum.

Houses to be safest should be fireproof. To families or communities that find it impossible to reach ideal standards of construction, the minimum of protection for houses is afforded by fireproof roof coverings and exterior walls; adequate fire stopping between studs to prevent passage of fire through walls and floors; by well-built chimneys properly flue-lined; protection around sills and pipe openings; and the use of fireproof materials to protect adequately all portions of the house where lighting or heating equipment may cause danger or through which fire might spread; by proper means of egress in case of fire.

By Building Codes scientifically conceived and enforced that will compel such construction.

By efficient fire-fighting, fire-prevention and life-saving services.

SERVANTS'
QUARTERS:

Where there are servants living in the home there should be a separate bedroom for each servant, and, at least, one bathroom and water-closet for their exclusive use. Where feasible, there should be a servants' sitting room. For the part-time worker, there should be a small dressing room in which to hang wraps, change from street to working clothes and to wash-up in, convenient of access to a servants' water-closet.

STAIRS:

Steep stairs should be avoided. Landings should be broad. Triangular turns or winders on stairs are unsafe and undesirable. Handrails or balustrades within the reach of young children should be provided on all stairs, including those leading to the cellar and attic. All stairs should be adequately lighted,

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and where there are young children it is often advisable to place gates at the top of the stairs.

STORAGE
SPACE:

Storage space ample in amount, reasonably accessible, and free from dampness, and properly lighted by natural or artificial light should be provided for household possessions. This includes space for the storage of vegetables and fruits, trunks and bags, coal, wood and other fuel, and for children's outdoor play equipment, and seasonal or temporarily discarded possessions.

WASTE,
GARBAGE
AND ASHES:

Household wastes, ashes and particularly garbage should be kept in covered metal containers of sufficient size, free from access of flies, dogs, cats, rats and vermin, pending its prompt removal and final disposition by the authorities.

WATER
SUPPLY:

Water supply should be adequate in amount, clean and free from pollution. There should be conveniently located outlets in kitchen, bathroom and cellar and for outside use in watering lawns and gardens. In rural districts or those beyond the reach of municipal water supply the well or spring should be so situated and protected as to avoid contamination. The water should be piped into the house and if necessary provision should be made for adequate protected storage. An ample supply of hot water is essential. The U. S. Treasury requirements for interstate carriers may be taken as a standard of purity.

WIRING:

All electric wiring and equipment, including the radio, should be properly insulated for safety from fire and water, and should be installed according to standard safety practices and certified to by the properly constituted public authorities and by the fire underwriters. Fuses should be in a readily accessible place, but safe from children. Outlets should be adequate in number and in convenient locations. Hall lights and lights for cellar stairs should be controlled by three-way switches at top and bottom of stairs.

- WORKROOM:** There should be a workshop in which the men and boys of the house can putter. This can usually be located in a dry, sunny, well-ventilated basement, shed, garage or attic.
- YARDS:** Side Yards and Rear Yards. The space between adjacent buildings, both at side and rear, should never be less than the height of the highest adjacent wall. Front Yards. These may be any size. Courts. Courts should never be less in their least dimension than the height of the highest wall forming such courts.

The Environment of the Home—The Community

- AIR POLLUTION:** The neighborhood should be free from smoke, dust, odors and fumes.
- ALLEYS:** Alleys that are not paved, cleaned, lighted or policed by the municipality are objectionable in residential districts and should not be planned in new subdivisions. Existing houses fronting on such alleys should be abandoned under a comprehensive plan.
- BEAUTY:** Neighborhoods should, so far as possible, have charm and distinctiveness and be free from ugliness and monotony and other conditions that tend to depress or humiliate the family.
- BLOCK SIZES:** Where feasible, blocks in residential areas should be from 800 to 1,200 feet in length, with provision for pathways 10 to 15 feet wide in the center for use of pedestrians. The long axis of the block should be in the direction of traffic movement.
- DENSITY OF POPULATION:** In residential areas an "open" development of 12 houses per acre has proved satisfactory.
- LOCATION:** The preferable location for a home is on a secondary street so planned as not to be inviting to through traffic. Residences should not be unduly near railroads, aviation landing fields, public garages, stables, dumps, marshes or obnoxious industries.

- LOT COSTS:** The cost of an improved lot for the residence of the average man should preferably not be more than from 1/6 to 1/4 of the total cost of the land and building with all the improvements.
- LOT SIZES:** **MINIMUM WIDTH.** For detached houses lots should be not less than 40 feet; for semidetached houses not less than 30 feet; for row houses not less than 16 feet, preferably 18 feet.
MINIMUM DEPTH. Residential lots should be not less than 85 feet in depth.
- NEIGHBORHOOD:** The neighborhood should be primarily residential. Homes should not be located within an industrial district.
It should be free from "moral nuisances" such as disorderly houses, centers of liquor traffic and gambling houses.
In new developments residential areas should be developed as "Neighborhood Units" along organic lines in self-contained communities.
- NEIGHBORHOOD PROTECTION:** The neighborhood should be protected by zoning laws, where necessary supplemented by deed restrictions, thus insuring its maintenance as a residential area of good character and stabilizing the investment in a home.
Deed restrictions are efficient safeguards against careless, eccentric or greedy acts on the part of lot owners.
They usually cover the use of land, type of structure, height, cost, architectural appearance, out-buildings, nuisance uses, building lines, projections, area of lot occupied, further subdivision, easements, alienation, and occupancy, enforcement, etc.
- NEIGHBORHOOD UNITS:** To secure a maximum of efficiency, neighborhood units should not greatly exceed 160 acres in area nor be much less than 100 acres.
As self-contained communities they should usually be within the boundaries of major thoroughfares.

- PARKS:** Not less than 10 per cent of the area of the entire municipality should be devoted to public open spaces other than streets.
- The municipality should acquire as early as possible strips of park land of appropriate width, where feasible, on both sides of available streams and other bodies of water.
- OUTER PARK SYSTEMS:** State, county and regional authorities should acquire outer park systems of suitable area to serve the needs of the municipalities.
- PARK AREA:** Minimum standards³ of park area are, for:
- CHILDREN'S PLAYGROUNDS**—25 square feet for each child between 5 and 15 years of age living within radius of one-quarter mile.
- ATHLETIC FIELDS**—50 square feet for every person in the municipality between 12 and 24 years of age.
- NEIGHBORHOOD PARKS**—One acre of parks to each 3,000-5,000 persons in the municipality.
- In general, one acre of recreation area per 300-500 persons in the municipality.
- PLAY-GROUNDS:** Playgrounds should be set in a frame of trees and shrubbery, thus conserving neighborhood values.
- SCHOOLS:** Elementary schools should be within a radius of not more than $\frac{1}{4}$ mile, should be accessible without crossing a thoroughfare at grade, and should have at least 5 acres of ground.
- A junior or senior high school within the Neighborhood Unit should have at least 10 acres of ground.
- SHOPPING CENTERS:** Shopping centers should be accessible to residences within a radius of a quarter to a half mile and should be concentrated on the boundary streets of a residential area.
- The aggregate area of shopping centers and the number of shops that can prosper in the average municipality is directly proportionate to the population trib-

³ Many cities report that they have exceeded these standards.

utary to such areas. In general it will be found that for each person in such tributary population from three inches to six inches of shop frontage will be required; this includes both the central shopping district and outlying neighborhood store areas.

A reasonably safe allotment of area would therefore be:

For the central shopping district not more than 6 inches per person in the total tributary area.

For neighborhood store areas, not more than 6 inches per person in the immediate tributary area, in general within a radius of one-half mile.

SITE SUITABILITY:

Residences should not be located on land that is frequently flooded or so low that it is damp or subject to difficulties in sewage disposal. Areas of low-lying land improperly or insufficiently drained, and areas of made land where material liable to decay has been used to make the fill, should be avoided as residence sites.

STREETS:

Subject to variations in latitude, residential streets should, when feasible, run so as to afford a maximum of sunshine to homes. The maximum sunlight penetration is obtained when streets do not deviate more than ten degrees from the north and south line.

Streets should fit the topography, avoiding steep grades. Gently curving streets affording pleasant vistas are better for residential areas than a rectangular or "gridiron" plan.

STREET WIDTHS:

In Neighborhood Units, primary streets should be from 60 to 80 feet in width, secondary streets from 30 to 60 feet. An 18- to 20-foot paved roadway is generally sufficient for local needs. The rest should be used for sidewalks and strips planted with grass, shrubs and trees.

The Landscape—Its Planning and Planting

LANDSCAPE PLANNING:

1. There should be a plan for the grounds of every house—no matter how small.
2. In order that house and grounds may be designed as one harmonious composition, the landscape plan

should be made at the same time as the architectural plan.

3. In the case of row houses, interest and individuality are often achieved by arranging them in groups and by set-backs, and in other ways, considering the plot plans as part of the street layout.

THE DESIGN : While every landscape problem is an individual one, the following factors that affect the design are fundamental :

1. The size and shape of the lot.
2. The existing topographical conditions.
3. The desired exposure to sun and wind.
4. The relation to neighboring houses and grounds.
5. The relation to the street and its planting.
6. The space required to give light and air to side windows.

LOT ARRANGEMENT :

1. **THE APPROACH**—The approach to the house, the walk, the drive to the entrance door should be in scale with the size and character of the house.
2. **THE SERVICE AREA**—The service area should be of the minimum size necessary to provide for service of supplies (fuel, etc.), the service of wastes (garbage, etc.), the service of maintenance (laundry yard and possible vegetable garden). It should be apart from or screened-off from the outdoor living areas.
3. **THE AREA FOR PLEASURE**—This should provide for beauty and for the social and recreational needs of the family, including :
 - a. Some outdoor living space, whether terrace, lawn, or flower garden.
 - b. Playspace for children.

CONSTRUCTION :

1. Grading plans, when practicable, should be made in advance so as to save topsoil by stripping it off before work on the house is commenced, if there is enough to justify the expense; and so as to avoid unnecessary rehandling of soil in excavating and grading.

2. The lot should be graded and drained away from the house to carry off surface water, but care should be taken to avoid causing conditions objectionable to neighbors.
3. Drives, walks, planting beds, and other landscape features should be in keeping with the size and character of the house, and should be so constructed that there will be freedom from dust.

PLANTING:

1. Shade, privacy, freedom from dust, and beauty are primary considerations in planting.
2. The planting as a whole composed with the house as the central feature of the picture, is more important than the individual plants.
3. The character of the neighborhood should be considered in the planting of each individual lot. With group or row houses this is particularly important.
4. The ultimate growth of each plant as well as its present effect should be considered, avoiding for foundations the planting of shrubs that will eventually grow in front of the windows.
5. It should not be forgotten that houses of poor architectural effect can often be improved in appearance by skilful planting.

STREET

PLANTING:

Street trees and other street planting are the final phase of harmonious design.

1. Residential streets should be planted with trees and grass.
2. Planting strips should be wide enough to meet future as well as present needs.
3. Trees are necessary for both shade and beauty. For shade, large trees should predominate.
4. For beauty, the planting should blend with the landscape and the topography. It should avoid too great formality and symmetry and should give unobstructed views for traffic safety, and should frame vistas.
5. For economy, native and hardy plants should be

used, as well as those that do not run to weeds. On slopes, plants that will help to hold the soil should be employed.

The Embellishment of the Home—Its Furnishings and Decoration ⁴

UTILITY : Every article of furniture or equipment should have a definite and useful purpose to serve and should do it efficiently. An arm chair should be comfortable. A lamp should give the kind and amount of light needed at the place where it is put. Bed springs and mattresses should conduce to restful and sound sleep.

BEAUTY : There should be Harmony :

- I. Harmony with the architect's DESIGN of the WHOLE HOUSE, as well as of the particular room. Its size, proportions and principal features, such as windows, doors and fireplace, should be carefully considered in deciding on its furnishings and decoration.
- II. Harmony of color and treatment BETWEEN ROOMS that open into each other, especially if the opening is large and permanent.
- III. Harmony WITHIN THE ROOM, which may be achieved by :

(1) UNITY—This is the quality that draws the room together as a whole. There must be one important element throughout to which other elements are subordinated. Dominant lines may be straight or curved, vertical or horizontal. A dominant color gives the background to which other colors are keyed—as, écru, gold and tan, or blue, silver and gray.

⁴ See note of dissent regarding these standards by some members of the Committee on Home Furnishing and Decoration in "Homemaking, Home Furnishing and Information Services," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. X, p. 131.

(2) VARIETY—Variety is the element of contrast. Unity must not be allowed to become monotony. Variety must be sparingly used. A touch of contrasting color may waken a room into life. Too much variety may make a room spotty. If there is a pronounced figured design in either wallpaper, rug or draperies, plain colors should be sought for the other two.

(3) PROPORTION—The apparent proportions of a room may be altered by the way it is decorated and furnished. The ceiling may be made to appear lower by being comparatively dark, by a direct lighting system, by horizontal lines in moldings and furniture, and by a large rug of rich color and design to emphasize the floor.

It may be made to appear higher by being extra light in color, by central lighting, vertical lines in furniture and window hangings, and keeping the floor inconspicuous.

The apparent size of a room in its other dimensions is increased by using light, cool, plain colors; by unity in color, line and design; by lightweight furniture and few decorations.

Its apparent size is decreased by dark, warm colors; by figured design in rugs, wallpaper, upholstery and draperies; by strong contrasts in color, line and design;

by heavy, massive furniture; by many decorations.

- (4) **BALANCE**—This is an element in achieving proportion. It may be either symmetrical or informal. The former is safe, easy and dignified—as, when a mantel has a picture over it, a clock in the middle and a candlestick at each end. Repeated too often, it becomes mechanical and monotonous. The achievement of informal balance through unlike objects is more difficult, but more interesting when well done.
- (5) **COLOR**—The color background of a room should follow the general scheme found in nature—the ceiling (the sky) being the lightest area; the floor (the ground) being the darkest, and the walls (the foliage) an intermediate. This is the principle of the environment our ancestors have been used to ever since they emerged from the water many eons ago. Intense colors should be used only in small quantities. Contrasting color harmony, while more difficult to achieve than harmony of likeness, is very effective. Rooms with a northern exposure should be warmed up by using shades of tan, yellow or orange. Rooms overbright, or intended for summer occupancy should be done in cool colors—in gray, silver, blue, lavender or the cooler greens.

(6) **SIMPLICITY**—This is an element both of beauty and appropriateness. Pretentiousness and meretriciousness should be avoided.

INDIVIDUALITY:

There should always be harmony between the room and those using it. Furnishings and decorations are an environment and like clothes should express the individuality of those who use them. Colors and designs should be chosen that bring out the best points of the room's occupant.

The wife and mother planning her own color schemes and buying her own furniture should be on guard against letting her own individuality dominate at the expense of the individuality of her husband and children; and against accepting conventional generalizations, as that girls should be given dainty bedrooms, when her daughter may be of the forthright out-of-door type to whom a Dresden-china scheme of decoration would be acutely painful.

ECONOMY:

Economy involves quality and durability and not mere cheapness. It is relative to income and to the amount that can be spared in a given case. Decorators sometimes place one-fifth to one-third of the capital cost of a house and lot as a reasonable expenditure for furnishings.

This is way beyond the capacity of small-income families. The smaller the amount of money available for furnishing, the more carefully the furnishing should be planned in advance. Even a \$100-a-room allowance can be made to produce acceptable results, if all nonessentials are omitted and a proper proportion in expenditure is observed.

Homemaking

The Home is the one field of human activity that thus far has seemed to be immune to the new ideas and improved methods that mark such an advance in the industrial world. Household methods too often are still based on tradition and convention, rather than efficiency.

The household needs to be organized.

Heaven forbid that homes should ever be standardized! But every dictate of reason points to the need of the adoption of wise standards of homemaking.

The following suggested STANDARDS are submitted:

1. The management of the home should be planned. Time and strength should be budgeted, as well as money, so that there may be time for rest and recreation. The members of the family should share in such planning.
2. There should be a regular, but flexible, schedule for household tasks. Too many heavy tasks, like sweeping, changing of beds, etc., should not be set for one day.
3. There should be a stated time for rest when the small children may rest with the mother, and the older ones may read or play quietly.
4. Each member of the family should be responsible for definite tasks, for keeping his room and belongings in order, according to age, strength and other responsibilities.
5. Meals should be regular. They should be planned so that roasting and baking can be done with one heating. In cities, baking of bread should not be done at home, except when quick, hot breads are desired.
6. Careful personal marketing should be done regularly, to permit selection of food as to quality, quantity and price, and to insure freshness of fruits and green vegetables.
7. Supplies of staples should be kept on hand, where space permits, with special supplies for emergencies.
8. The drudgery of washing and ironing should be decreased, either by employing a part-time laundress, or by using washing machines and other mechanical helps, or by sending out the laundry, or sending part of it for "wet wash."
9. The part-time servant may be used successfully in some families. A man is best for heavy tasks, cleaning, etc. A cleaning woman, once or twice a week, suffices in some families, or a girl who can help with the children, wash dishes, etc., at times.
10. Danger to life and loss of property through fire should be minimized by careful housekeeping that will reduce fire hazards.
11. The home should be kept in good repair.
12. Proper provision should be made for the storing and disposal of garbage, rubbish, ashes and other household wastes. These

should be kept in covered containers of ample capacity, which should be fireproof, waterproof, and rustproof and so placed and maintained that they will not interfere with the healthfulness, appearance or attractiveness of the premises.

Financing the Home—Ownership, Renting, Income, Taxation

The foundation of home ownership is savings.

Success in both first and second mortgage financing depends upon correct determination of the following interrelated questions:

1. Accurate appraisal of the value of the property.
2. Ratio of loan to value.
3. Rate and certainty of amortization.
4. Life of mortgage and terms upon which it may be renewed.
5. Interest rate and all other charges.
6. Character of the borrower and his capacity to repay the loan.
 Character: Trade, profession, position, habits, family and other associations.
 Capacity: Health, ratio of income to commitment, additional obligations, additional security such as life insurance.
7. Character of lender and his capacity to carry the loan.
 Character: Established reputation for fair dealing.
 Capacity: Freedom of lender from entangling commitments which may be incident to short-time and to security banking.

Borrower and lender should take competent advice.

They should thoroughly verify and check such advice.

When in doubt they should avoid commitments.

HOME OWNERSHIP

1. The purchase price of the home should not, as a rule, exceed twice the assured annual income.
 If the family is of less than average size, this proportion may be somewhat increased. Where the number of dependents is above the average, the cost limit of the home which it is proposed to purchase should be correspondingly decreased.
2. The equity should equal 25% of the purchase price, under present financing methods.

3. The amount of equity is dependent upon:
 - The assurance of the continuity of the annual income.
 - The demonstrated ability of the borrower to save.
 - The circumstances of the borrower as to other commitments.A married couple 25 years of age who have saved \$1,000 might safely purchase on an equity of but 20%.
At 45 years of age and where there are several dependents there should be a much larger equity.
4. Fixed charges are an important element. The maximum carrying charges undertaken in purchasing a home—including interest, amortization of principal, taxes, insurance, heating, maintenance, replacements and repairs—should not as a rule exceed the family's previous budget items of rent-plus-savings. They should, indeed, be kept sufficiently below this limit to provide a margin of safety for such contingencies as illness and unemployment.
5. Mortgages and their terms as to interest, renewal charges, and dates of renewal should be thoroughly understood.
6. Long-term mortgages with periodical payments should be within the capacity of the purchaser to meet, with enough of income set aside for savings in case of illness or unemployment.
7. A family should know that it is getting the right kind of home when it buys it. Before purchasing, a careful search should be made. Such a search should disclose a clear and marketable title and a conservative appraisal as to value.
8. To increase, as far as possible, the number of families able to acquire a home, methods of financing small-income home purchasers should be developed that will:
 - Permit the smallest down payment consistent with safety.
 - Afford the lowest interest rate on the market.
 - Give the maximum time for amortization within the limits of the probable working life of the home purchaser and the effective lifetime of the house.
 - Afford the maximum of protection to the purchaser against exploitation, and to the selling and lending agencies against loss.

THE RENTING OF HOMES

1. Renting is preferable to buying when the cost of financing and maintenance is too high or the tax burden too heavy.

2. Renting is preferable where there must be mobility of labor.
3. Families should not have to pay more than 20% of their income for rent without heat, or 25% where heat is included.
Families with extra small income or with an extra large number of dependents cannot without hardship pay as much as 20% of their income for rent.
4. To make possible for a larger number of families the rental of adequate housing at not to exceed 20% of their income, and also to provide adequate housing for those unable to pay as much as 20% of their income for rent, methods of financing should be developed that will provide a larger volume of capital than is now available, at lower interest rates and with a longer period of amortization.

TAXATION

The means by which unfair burdens of taxation may be removed from dwellings include:

1. Separate assessment of land and buildings.
2. Assessments at full value, made possible by:
 - Basic land maps, permanent section, block, and lot numbers, land-value maps giving front-foot values and published yearly or biennially.
 - Requirement of true consideration in deeds.
 - Requirement of a supplementary statement giving true cost of new structures upon their completion, as distinguished from estimated cost set forth in the application for the building permit.
3. County supervision and equalization of local assessments, with state equalization and supervision of counties.
4. Elimination of overlapping tax districts.
5. A single statement of school, municipal, and county taxes on one bill—payable in equal instalments, preferably semi-annually.
6. Where state taxes, such as those on incomes or gasoline consumption, are levied, and a part of such tax is refunded to the various municipalities, such refund should be prorated on the basis of the total assessed values in such municipalities—thus placing a premium on full-value assessment.
7. Where part or all of the cost of a public improvement is assessed back upon the land benefited, such cost, if it exceeds 5% of

the assessed value of the land, should be payable at the option of the owner in 10 annual instalments, with interest payable each year on the unpaid balance. The owner should also have the privilege of paying off any such assessments or interest in units of \$50 at his convenience.

8. The abolition of taxation of dwellings in course of construction.
9. Assessors in assessing buildings should make an allowance for depreciation, which should correspond with the generally accepted rate of depreciation for the type of structure involved.
10. Publicity of assessments through periodical publication of land-value maps, and the making of assessment data available to the public at all times.

Helping the Home Seeker—Home Information Centers

1. A Home Information Center should be an agency adequately financed, independent of control by other organizations and directed by a fair-minded impartial board of directors.
2. It should be operated on a basis of scrupulous sincerity and regard for truth, and must in no wise be a "selling" agency for the community, concealing unpleasant facts or emphasizing only favorable ones.
3. It should record and report all unfavorable factors to the public or private agencies responsible for or capable of, or interested in improving such factors and thus serve as a sensitive barometer of the outsiders' reactions to local conditions, leaving to such agencies the responsibility for advocating their correction, if bad, or their further development if good.
4. It should not become militant but should always preserve its character as an information bureau.
5. As an auxiliary service to local residents, as distinguished from home seekers or prospective residents, it should maintain complete card files, giving information as to where, from whom and how, goods or services may be obtained.
6. It should have a centrally located, preferably independent, ground-floor office, in charge of a trained secretary of tact and discretion. It should be equipped with an effective index system for ready reference and map-display racks on which much of the material enumerated under "Objectives" should be recorded graphically and displayed to advantage.

The Reconditioning of Houses

- EXTERIOR:** To be weather-proof, durable, screened.
- INTERIOR:** To have adequate space and separation for family life, individual privacy, children's play, adults' recreation, quiet for study and sleep, receiving of friends, preferably not more than one family or at most two in a house where there are children; sufficient closet space. Ample daylight everywhere so far as practicable but especially in bedrooms, kitchens, stairways, passages, bathrooms and water-closets. As much direct sunlight as can be had. Artificial lighting adapted for necessary evening work without eye-strain. All rooms well ventilated; arranged and equipped for protection from cold and heat and with adequate heating apparatus; free from escaping coal gas, illuminating gas or any combustion product. For each family, individual sanitary bath and water-closet facilities, connected with sewer or septic tank; provision for hot water.
- GROUNDS:** To have adequate playspace for children, good drainage, freedom from excessive dust, good landscape planning and planting where possible.
- IN GENERAL:** A clean home and grounds properly painted or otherwise finished where needed and easy to keep clean; with pure, abundant potable water supply; protected against fire everywhere, so far as practicable, and especially as to roofs, chimneys and flues, insulation of heating and lighting connections and prevention of passage of fire around pipe openings or sills or through walls or floors; of durable materials; in good repair and arranged for safety; with structures of sufficient strength to support imposed loads and affording adequate rigidity, with well-lighted safe steps and safe railings, with floor and ground surfaces free from irregularities likely to cause falls; convenient and labor saving; of attractive, well-kept appearance, planned throughout for the comfort and happiness of the family.

Slums and Blighted Areas

There should be:

1. A definite policy and program for the treatment of blighted areas and slums.
2. Express legal power to proceed to clear areas because they are unsanitary or because the public interest requires it.
3. Legal authority to demolish structures that have reached a point of deterioration so that they are hazardous to health, safety or morals.
4. A fair basis of compensation for property taken—fair to the property owner and fair to the taxpayer.
5. Legal authority to replan areas so unsuitably planned or so covered by substandard, obsolescent or deteriorated structures that their continued use or presence jeopardizes public welfare and municipal economy.
6. Comprehensive replanning and rezoning of such areas in harmony with the city's master plan and designed to secure the best economic and social use of the sites as they are cleared from time to time, so that private owners engaged in altering or replanning structures will be influenced to conform to such plans for future development.
7. A sound financing program for municipal improvements that will provide for a sharing of the costs and a recovery of expenses that will not make such schemes prohibitive.
8. An applied municipal program for the supervision of structures and the promotion of municipal projects that will help to prevent the future development of blighted areas.

DISSENTING STATEMENTS *See page 181*

The report of the Committee on Standards and Objectives was originally approved by all members of the committee with the exception of Dr. Wilson Compton and Mr. John Ihlder, and with a slight qualification, noted below, by Mr. Franklin T. Miller.

DR. WILSON COMPTON expressed his dissent in a series of letters which follow. On December first, he wrote to Dr. John M. Gries in part:

"I regret that I may not sign the form enclosed with the tentative report of our Committee on Standards and Objectives of the President's Conference on Home Building and Home Ownership which would give blanket endorsement to the report as now proposed.

* * * * *

"Again, the statement 'Houses to be safest should be fireproof.' This is either axiomatic or untrue: Axiomatic if it means that houses to be safest from fire should be proof against fire; untrue if it means that maximum safety may be secured by the simple device of 'fireproof' construction—whatever that may mean. Safety from fire is notoriously dependent much more upon the condition of the contents or the occupancy hazard, of which nothing is proposed to be said. Furthermore 'safety' is not synonymous with 'safety from fire.'

"Again the proposed statement: 'To families or communities that find it impossible to reach ideal standards of construction, the *minimum*⁵ of protection for houses is afforded by fireproof roof coverings and exterior walls . . .,' appearing under the title 'Safety' is not substantiated by fact. It constitutes a recommendation which will add much to building costs, little, and in many types of occupancy, nothing to fire safety, and is in direct conflict with one of the announced principal objectives of this Conference.

"I have already had placed before the committee a number of recommendations on this subject which would, if observed, accomplish both safety and economy.

"The statements referred to above are of the type of generalization and recommendation in reports to the Conference which, I understand, several members of this committee discussed with you recently as dangerous and undesirable."

On December twenty-second Dr. Compton wrote Mr. Lawrence Veiller, Chairman of the Committee, as follows:

"After a review of the tentative report of the Committee on Standards and Objectives, I continue to hold the belief that the recommendation in the sec-

⁵ Italics not in original.

tion entitled 'Safety,' page 37, on which, as a committee member, I have registered partial dissent, is in part unsound and misleading.

"In orderly response to the inquiry of the Executive Secretary of the Conference for my action as a committee member on the draft of report submitted by you as Chairman, I withheld concurrence on three grounds, as follows:

"First: The proposed language implies that fire safety may be secured in terms merely of construction materials and design, without, as I view it, due regard to the known principal causes of fires, namely, the occupancy and contents hazards.

"Second: It proposes for isolated farm homes the same standards of house construction as for congested urban areas.

"Third: It proposes a standard which, in many respects, for many types of occupancy, would, if observed, add little and, in many instances, nothing, to fire safety, and much to cost.

"So that my criticism may be in not merely negative form, I attach copy which affirmatively incorporates these points. This has been submitted informally to Dr. Ford, with the indication that I am content to have it incorporated as a minority dissent in part. I, of course, gladly waive any trivial criticism of other portions of the report in detail, with which as previously indicated I am glad to concur."

On April sixth, Dr. Compton circularized the members of the Committee on Standards and Objectives, submitting his proposed supplementary statement to paragraph one of the section entitled "Safety." He suggested that that section be redrafted as follows:

"Safety. Physical protection in homes should be assured:

"1. By methods of construction that will reduce fire and conflagration to the minimum.

"Houses should be safe from fire. Desirable protection for houses is afforded by approved roof coverings and, in closely congested areas, roof and exterior wall coverings of incombustible material; by adequate fire stopping between studs to prevent passage of fire through walls and floors; by well-built chimneys properly flue lined; by protection around sills and pipe openings; by the use of incombustible lath and plaster or equivalent fire-resistive material at vulnerable points of the house where lighting or heating equipment may cause damage or through which fire may spread; by proper means of egress in case of fire.

"No standard for house construction may be regarded as a substitute for precaution against fire due to occupancy hazards and by occupants to prevent the starting of fires, most fires originating in house contents and not in the structure itself."

Owing to the limitations of the budget of the Conference, it was not possible to call a supplementary meeting of the committee to

discuss this proposed change and so the report has been published with the statement originally approved.

MR. JOHN IHLDER'S dissent was expressed in the following terms:

"My feeling is that the statement in the preliminary report was too drastic. A few days ago, for example, I passed a frame house in one of the suburbs of Boston that had been burned out. The wooden walls above two of the second floor windows were scorched. Otherwise the frame sheathing of the building was not marked by fire. But the interior was entirely gone. My feeling is that frame dwellings have certain advantages that should be availed of under conditions where they may be widely spaced."

MR. FRANKLIN T. MILLER wired on November 30, 1931:

"I approve report with the comment that fireproof exterior walls are not necessary for the safety of small homes located where there is no external fire hazard."

In confirmation of this telegram by letter on December 10th Mr. Miller stated:

"Where there are no external fire hazards, the danger is not from without; but it is from within. Danger from within requires internal fire protection, and not external fire protection.

"There are millions of one- and two-story homes throughout the suburban and country districts which are isolated and not exposed to external fire hazards. I would not disclass them as unsafe, simply because they do not have fireproof exterior walls. I would encourage these people to spend their limited funds where the expenditure would do them the most good and afford them the most safety—that would be in internal fire protection, and not in exterior fireproof walls."

CHAPTER IX

EDUCATION AND SERVICE

Introduction

Reports of the twenty-five fact-finding committees have been submitted to the President's Conference on Home Building and Home Ownership. The more than five hundred members making up these committees—all of them specialists in one or more fields of knowledge—have profited by contact with each other and with a host of people who are also well informed and active in their special fields, and who have been glad to contribute to the findings of the committees from their stores of experience.

We may express the opinion that never before in any country has so much of accurate information and expert conclusion been assembled, from so many competent sources, concerning the problem of homes and their surroundings, as will be found in the material prepared and digested by the twenty-five committees, and made available for the present Conference and for the future guidance of the broad movement for the better housing and environment of the American people.

For the first time within the three hundred years of our experience—as American families building homes on their own lands—we have a rounded picture with all its variation of detail that exhibits to us the home conditions under which Americans are born, spend their lives, and send forth their children from the domestic hive. We find presented in these reports the problems involved in the planning, construction and use of homes and home grounds; of streets, parks and common spaces; of neighborhoods and communities in their widening zones. We are supplied with dicta that set forth the facilities now deemed desirable—and now available—for the ordinary family.

In short, we find presented a picture of living conditions, good, bad and indifferent, as shown by a survey extending from the Atlantic to the Pacific and from the Gulf of Mexico to the Canadian line. As against the picture of things as they are, we also have the firm and convinced statements of hard-headed and practical people concerning the possibilities of marked improvement. These have to do with the financing of home building and ownership; with the planning and construction of houses; with the

supply of water, light, electric power and sanitary requisites; with the arrangement of grounds and the planting of gardens; with the housewife and her daily tasks and her opportunities to earn more leisure.

At least a year has been occupied by many members of these committees in bringing about the collection of information and the exchange of views. Doubtless there will be much further work of this kind, in order to bring fresh facts and ideas to the innumerable details of that national superstructure that is yet to be reared upon the foundations that are now laid by this Conference. Years, rather than days or weeks, will be needed to distribute serviceable information to the various groups who can make the best use of it, and who can bring it home in concrete ways to individuals and families.

As regards many matters, this is likely to mean definite movements in the various states for improved legislation having to do with the taxation of real estate, the uses of lands, and the application of the principles of planning and zoning. It will mean also the setting up of improved administrative machinery in towns, cities, counties and states. It will be expected to encourage far-reaching plans for the laying out of villages, towns and suburban districts, and to protect the home owner against nuisances and haphazard kinds of development. It will make available well-seasoned kinds of advice relating to industrial locations, in order that workers in factories, as well as their employers, may have the benefit of the best experience, whether the houses they occupy are acquired by them on instalment payments, or are provided on some form of rent or lease.

This Conference is so ambitious as to believe that citizens and their families can be educated about these matters. What decisions are more important for them than those that affect the home, and the environment in which they must live and work, save and spend, employ their leisure, seek their satisfactions, and find solace in their sorrows and disappointments?

As soon as any city or community is supplied with homes and pleasant surroundings within the various price levels, including low-cost homes for families of modest means, there is provided a measuring rod by which to rate the offerings in the market. A certain degree of choice, dependent upon the supply of high-

standard homes, is given to prospective purchasers. "Keeping up with the Joneses" would be a very laudable practice if only the example set by the Joneses were always a sensible one. Good taste and a fine appreciation of the requirements for comfortable living can be applied in the smallest as well as the most elaborate homes.

During the last century, the houses which have most offended the accepted principles of good design, and of suitability for the daily operations of the families which they sheltered, have been the pretentious mansions rather than the humble cottages. We have learned that the essential provisions for relaxation and intercourse with friends; for restful hours at night; for preparation of nourishing food; for personal cleanliness; for enjoyment of sunshine and air—do not necessarily require a large amount of space, or a great number of rooms. Since size is no criterion of comfort, convenience or beauty, there is no reason why habitations in all the price groups might not offer what we are pleased to call the American standard of living to all self-supporting families.

Nor is there any reason why parks and playgrounds for outdoor recreation; pleasure parkways for driving; footpaths and trails for walking; schools, libraries, reading-rooms, theaters and amphitheaters for music, drama, and pageantry; art and natural history museums—and various aids to the practice of civilized living, should not be supplied by the community for everybody, rather than for a select or limited class.

But, just as the pioneers who built free baths in New York City found that they must educate the neighboring public to use them, even so today we must educate the public to demand and use all the facilities which may easily be theirs for the asking (if they are community enterprises), and theirs for the buying—if the professional, technical, industrial and commercial groups are duly stimulated by the advice of this Conference.

Audiences

The correlating Committee on Education and Service has been assigned the duty of presenting to the President's Conference on Home Building and Home Ownership certain practical suggestions. How may the contents of this veritable treasure house of information and advice, brought together by the twenty-five

primary committees, be delivered to the various destinations indicated in the reports? The special audiences addressed may run upwards to a hundred or more, though—with classification into related groups—the list may possibly be reduced to some twenty-five groups of audiences.

Practically all of the reports address a part of their remarks to home buyers, home owners, home renters and homemakers. Many of the reports address builders and contractors, building material trades, home and building financing agencies, real estate dealers, insurance companies, furniture and equipment manufacturers and dealers.

Professional groups that are exhorted include architects; landscape designers and gardeners; home economists, land economists, and economists at large; city planners, engineers, sociologists, educators, librarians; artists and special designers with inclusion of such interior decorators as are actually trained in design. In some of the reports, those who provide public utilities are given food for thought. These comprise the purveyors of gas, electricity and water, and those who supply sewer systems, telephones and various sorts of transport and transit.

Then we have to consider the educational institutions,—schools, colleges and universities, continuation and extension courses, and all the various agencies for adult education.

Many of the reports suggest legislation—national, state and local—and so may be assumed to be addressing members of existing and future Congresses, legislatures, and county, city and town governing bodies. Administrative officials—Federal, state and local—particularly members and staffs of city planning and park commissions, building inspectors and others, are advised of their responsibilities to home owners and renters.

Publicity channels, such as newspapers, magazines, professional and trade journals, radio officials and broadcasters, and motion picture directors, are listed as valuable agencies for reaching the public at large, or special groups.

Finally, there are various organizations of wide influence that are told how they may render a genuine service by helping to educate their own members and others, using as texts the appropriate reports of the President's Conference on Home Building and Home Ownership. Among the organizations indicated are

technical and professional; industrial and commercial; agricultural and rural; city planning, park and civic associations; social welfare, women's educational, labor, religious and race, general and junior groups.

It will doubtless prove to be a burdensome task to separate and translate the information included in all the reports for the benefit of all these different groups, in order that they may use it with ease. It will probably be even more of a task to work out broad suggestions until they are perfected into specific projects, which can and will be used by manufacturers in the production of material for equipment and furnishing of homes, and at the same time educate the buying public to purchase commodities which will yield a maximum service to their owners.

The adjustment of family budgets to homes and home furnishing is no easy operation; but it may be facilitated by knowing how to secure living quarters that come fairly within the family income. This is subject matter that is of interest to almost everyone. When homes, equipment and furnishings are actually on the market in conformity with the recommendations of the committees of the President's Conference, this information will be much more practical than it is today. In short, unless the audiences are reached, no amount of preaching to prospective home buyers will enable them to secure the accommodations which best fit their needs and pocketbooks.

Schools and Colleges

In any long-range educational program the schools and colleges must have first consideration. From these institutions will come the leadership of the next generation of citizens. Many of those who are now students in colleges will be purchasing homes of their own within the next decade. Here one finds the opportunity for providing college students with essential information for meeting the problems which they will face so soon. Opportunities for college students to elect courses in city planning and housing are limited. Housing and planning subject matter could profitably be included in courses in economics, sociology, municipal government and home economics. Such courses, given by competent instructors and supplemented by appreciation courses in housing and landscape design, would tend to raise the standards of housing throughout the country. Moreover, strong departments of archi-

ecture and landscape architecture frequently exercise direct beneficial influence.

For the children who are, at present, attending elementary and secondary schools, the period before the age of home buying will be longer; but the advantage of reaching a larger number of future citizens, and reaching them earlier in their lives, should not be neglected if it can be realized without violence to the educational program.

The committee recommends:

1. That the entire report of the Conference, including the committee reports, be printed.

2. That a general and comprehensive bibliography, as well as selective bibliographies, be prepared for use by those who have to cover definite subjects in the field of teaching.

3. That there be certain material picked out which it is desirable to teach in elementary schools, high schools, and colleges.

4. That a committee be appointed after the Conference to go through the correlated material, and find out what should be used in elementary schools, high schools and colleges, and present its findings in form suitable for use of curriculum committees.

5. That this committee present to the publishers of textbooks such recommendations of the Conference as can be embodied in textbooks.

6. That a summary that would be useful for short talks by teachers and college administrative officers be prepared, after the Conference, and sent to superintendents and teachers.

If the material is put in the proper form, there seems little doubt that many ways will be found to incorporate much of it into the teaching programs of the country, either directly or indirectly, as illustrative subject matter.

Other Agencies for Adult Education

While it is recognized as highly important that students should have acquired information which will help them meet their subsequent problems of home hunting, renting and buying, it is realized that, for immediate results, adult education is necessary. Moreover, adults are likely to have a more lively interest in problems with which they are constantly confronted, in one way or another—for the purchase of a home does not end the problems which beset the buyer.

Among other agencies for adult education suggested by this committee are:

1. The cooperative extension services in agriculture and home economics, which are well organized to disseminate to rural groups the findings of the President's Conference on Home Building and Home Ownership. The material suitable for use by the agricultural extension services should be shaped and prepared for that field as a whole—with suggested adaptations for different regions of the United States. This material might be compiled in the form of a source book, supplemented by pamphlets covering specific branches of home building and home ownership.

2. The university extension services and other social and educational institutions.

3. The Federal Board for Vocational Education, which is in a position to use the Conference material in continuation schools throughout the United States.

As suggested by the Committee on Organization Programs, many organizations of many types may carry on adult education within certain fields at least to the extent of educating their own members. In some cases these organizations may conduct definite study courses.

Special Services

This committee has been asked to suggest the agencies and special facilities that should be used in making effective the findings of the President's Conference on Home Building and Home Ownership, and to describe the ways in which such services might function.

It is agreed that the most effective use of the several special services could result only if there were a central continuing agency, which would serve to stimulate local action, prepare and distribute printed matter, suggest ideas and plans for exhibits and demonstrations, and advise on procedure as the results of experience by state and local groups. It is important to discover and encourage local leadership, in order to bring about community action. But local leadership is only fully effective when adequate national guidance is provided.

Emphasis on those factors in home building and home ownership which make primarily for health, comfort, privacy, sociability and the wholesome functioning of family and community life would seem to offer most appeal to the public.

Radio. The wide range of subject matter covered by the committees of this Conference affords numerous topics suitable for broadcasting, both during the Conference and after. The amount of time which will be given, and the effectiveness, rest largely with the selection of topics, the quality of the presentation, the co-

ordinate educational activities which help to arouse interest in the broadcasts, and to some extent upon the use of prominent people as speakers.

Programs need not be limited to addresses. Dialogue, question and answer, or interview, and other forms may be developed. A study of current radio programs will be helpful. (See "Radio in Racine," Education and Publicity Department, *American Journal of Public Health*, December, 1931, for description of 15 radio episodes, telling how the Martin family planned and carried on their summer vacation.)

There seems to be something of an audience at any hour that a station operates, if topics and speakers are interesting. When the speaker is not interesting, most of the audience will tune out, and few who do so will tune in for any future broadcast. Since the stations desire to fill all available time, good-will on the part of the station management will help to make use of some of the emergency periods. By having on hand material and speakers usable on short notice, some of the better hours may be placed at our disposal from time to time. The usefulness of the small local radio station should not be overlooked.

It is likely that special local groups may provide advertising space for special newspaper mention of home information broadcasts.

The group concerned with home information probably may be counted upon for the purchase of a certain amount of time—to be used by themselves or to be turned over to the home information center or other local organization equipped to disseminate information. In any case, care should be taken to keep home information talks as free as possible from seeming to have become mere promotion for commercial interests.

The active cooperation of the National Advisory Council on Radio in Education, 60 East 42d Street, New York City, should be sought, and, if agreeable to the Council, a functional committee on home building and home ownership should be added to its plan of organization. The cooperation of the National Committee on Education by Radio is also highly desirable.

Radio stations operated by colleges and universities could be of great service if a national institute could work out with them practical means for broadcasting certain parts of the Conference findings. It is suggested that a service of carefully prepared

phonograph records might be used to advantage for this type of broadcasting.

Motion Pictures. The cooperation of the motion picture industry would afford an effective, continuous and varied form of stimulation and guidance to individuals and groups. The Motion Picture Producers and Distributors of America, Inc., 28 West 44th Street, New York, and Motion Picture Exhibitors Association are the chief agencies for bringing this about. The programs must, however, be primarily entertaining, if they are to be used in this way.

News reels of outstanding events in connection with the Conference and in subsequent developments should be secured. They must be arranged well in advance.

Much stimulus and practical information can be brought to all motion picture audiences by incorporating home planning scenes into feature pictures; lovers and newly-weds, best features in architecture for stage settings, good examples of home furnishings and decorations in interior scenes, indications of the influence of good and bad housing upon children, youths and adults, and contrasts between neighborhoods provided with parks, parkways and playgrounds, and those which are inadequately supplied.

Consideration should be given to special pictures of good housing developments displacing slum areas, for use with special groups and at conferences and exhibits.

Teaching films on housing and city planning may be used in grammar and secondary schools and in colleges.

Amateur movies for local consumption offer real possibilities. Practical assistance in this can be had from the Amateur Cinema League, Inc., 105 West 40th Street, New York City.

Exhibits. Exhibits of various types and for a variety of uses may have considerable interest-awakening and educational values. Exhibits are one of the difficult forms of presentation, calling for more careful planning and preparation than frequently are given them. One result is that indiscriminating selection of material, mass of detail, confused arrangement, and lack of adequate explanation tend to deaden interest.

Possibly some of the Government departments and national organizations have exhibit material which could be displayed during conferences. Exhibits, and material for use in making up exhibits, are likely to be offered by some of the business and profes-

sional groups; but ordinarily such groups would profit by advisory service both for the content and the form of display.

It would be especially important for a national institute, if it is set up, to prepare some elementary advice on exhibit preparation, such as has been distributed recently by the Home Economics Division of the Federal Board for Vocational Education. Flexible plans for individual exhibits on different subjects could be prepared for use by local committees. Of particular importance is the development of reasonably uniform types of mounting and arrangement, to guide local committees as well as the national and state centers.

As a rule, traveling exhibits are practicable only from state centers. Local exhibits and the use of exhibit material may be extended almost indefinitely, being limited chiefly by the supply of ideas and materials from central sources, the ingenuity and resources of the state and local groups, and the nature and extent of the program of education laid out by the respective states and communities.

Exhibits may be held in libraries, museums, schools and colleges, clubs, home information centers, railway and bus stations, stores and store windows, vacant stores, Y. M. C. A., Y. W. C. A., Y. M. H. A., and Y. W. H. A. buildings, settlements, community centers, association headquarters and state, county and municipal buildings.

Technical information on exhibit-making will be needed from a central service.

Lantern Slides. Still projection retains a large field of usefulness. Good lantern slides, presented by a capable speaker or teacher, widen the range of facts and ideas which can be presented effectively.

The manufacture of nonglass slides, and the introduction of film slides or strip film have greatly increased the portability of this medium. The film slide, with its easily carried projector, makes it possible to show technical illustrations wherever there is a light socket.

The automatic, continuous-slide and film-slide projectors may be placed in waiting rooms, store windows, libraries, home information and other centers. In most cases, when used in public places, a maximum of six to eight slides will be better to use than a larger number. Very few people will stand to look at more than six or eight slides in succession.

An important function of national agencies would be the production and sale of slides to state and local groups, including state extension services. Some of the interested business and professional associations may be expected to offer slides and slide service. State and local centers may produce slides as well as make use of those available through national sources. University extension services, state libraries and museums, and special state associations are possible centers for slide production and distribution.

Demonstrations. Demonstrations of certain processes, guided visits to houses in process of construction or ready for occupancy, and guided visits to gardens, are among the possibilities.

Playlets or dialogues may be used to picture situations, or a series of situations, in the processes of planning, financing, building, furnishing, and choosing a location for a home. These may be offered to several types of audiences and may be used in connection with exhibits.

Industrial and other community parades may offer opportunity for presentation of an idea or situation. The indoor pageant form may utilize the playlet in processions, pantomime and tableaux. Better Homes in America, Inc., 1653 Pennsylvania Avenue, Washington, D. C., is in position to give practical advice on this subject, as well as on the local use of the findings of the Conference.

Contests. Much interest could no doubt be stimulated in the findings of the Conference by promoting through the grammar and the secondary schools of the country contests in essay-writing on special aspects of home building and home ownership. The records of the Conference in published form would serve well as reference material in such projects.

Valuable original material for both local and general use might doubtless be developed by the promotion of architectural competitions in plans for buildings, grounds, and interior decoration and furnishings. The successful designs could then be made available for newspapers, magazines and publications devoted to these subjects.

Publications

The committee recognizes the fact that certain questions concerning the preparation and circulation of publications are adminis-

trative in character, and can be decided definitely only with reference to financial possibilities, to general policies of the Conference, and to the recommendations of other committees, regarding the publication of their reports. With these limitations in mind, the committee makes the following suggestions:

1. That some means be found to preserve and circulate important discussions which occur during the Conference sessions.

2. That, with the exception of temporary reports prepared for use during the Conference sessions, "readability" be considered in editing Conference material for publication, with attention to both literary and typographical style and with free use of illustrations and graphic methods of presentation.

3. That throughout the program of printing, while preserving the artistic quality of the work, consideration be given to the necessity for issuing the findings in an inexpensive form in order that they may be available to large groups. This wide circulation would warrant careful attention to the preparation of reports.

4. That a national handbook be issued as a result of the Conference, giving what may be described as the philosophy of the Conference, showing the integration of the work of its various committees, and including such of their findings as are needed to present a clear picture of conditions, needs, and proposals for the general field of the Conference.

5. That in editing the publications of the Conference it is important to command not only editorial experience and skill but also a sympathetic understanding of the fields of the Conference.

6. That in general the publications embrace:

(a) The complete reports of committees in book form.

(b) Pamphlets in paper covers for material regarded as impermanent in character.

(c) Pamphlets on Conference subjects which require special adaptation to the interests of groups it is desired to reach, e. g., study groups in schools, clubs, and other educational agencies; householders, who create demand; groups in the house production and social service fields who have wide contacts and therefore unusual opportunities for translating the findings of the Conference.

(d) A selected, briefly annotated, classified list of references to literature on the subjects of the Conference. This might serve as a source book.

(e) A cross index of the Conference reports.

(f) A series of terse, carefully worded statements of a few of the more generally important points brought out by the Conference to serve as a text for lecturers, writers, and teachers and thus help to promulgate its essential findings.

7. That a news service be set up with a staff of competent writers to furnish press releases, not only before but also after the Conference, thus bringing to the general public a knowledge of Conference findings.

8. That machinery be set up for promoting the suitable use of Conference material by magazines of various types (i. e., general, rural, religious, racial,

educational, technical, professional, for women and for special organizations). This might include a staff of competent writers to prepare articles on request.

Libraries and Museums

The public, private and special libraries of this country have already, through the American Library Association, indicated their eagerness to cooperate with the President's Conference on Home Building and Home Ownership, in every way within their power. The report on libraries, in the report of the Committee on Home Information Services and Centers,¹ offers many suggestions answering the question how libraries and librarians may render a real service to the special groups who are seeking technical knowledge, as well as to the general public which, as a whole, stands in such great need of information that will guide prospective purchasers of homes to take sound action, and will aid them to avoid the many pitfalls which beset the inexperienced buyers of homes.

For the family which is considering buying or building, there may be found in the larger city libraries (including branches) many books, pamphlets, clippings, pictures, plans and sometimes lantern slides. Judging from recent trends, it may not be many years before entire wings or, perhaps, entire buildings in connection with libraries, may be devoted to printed and visual material on home planning, home building, home furnishing, arranging and planting of home grounds, streets, parkways, parks and playgrounds, as well as city and regional planning.

Even for the smaller libraries which are handicapped for money, there are available many bulletins issued by bureaus of the Federal Government, by state universities and land grant colleges and by voluntary associations, at low cost or entirely free. For research workers, local libraries can usually secure special loans of books and printed matter from the Library of Congress.

In recent years, college and university libraries are including much wider ranges in book and pamphlet selection than in the days when textbooks formed the staple content of such libraries. In the fields of land economics and city planning the largest special collections in this country are sponsored by universities.

The more progressive libraries have long made a habit of keep-

¹"Homemaking, Home Furnishing and Information Services," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. X, Pt. III.

ing in touch with community affairs in order that they may prepare special exhibits of books and other printed matter on subjects which are being discussed, or in connection with such events as flower shows, garden contests, home demonstration projects, planning contests, prize houses and gardens, garden pilgrimages, issuance of city planning reports, preparation and acceptance of zoning ordinances and assigned classifications, plans for new subdivisions, park extensions, new public buildings and other community enterprises.

When these exhibits are accompanied by photographs, plans, sketches and other visual material based on local conditions, the result is apt to arouse more local interest than the mere display of impersonal books written for everybody, everywhere—or at least for so many people in so many places that “local color” seems sadly lacking. Sets of lantern slides may include examples of good houses, good yards and gardens, and pleasing parks and parkways from other places; but, to be truly interesting, they should contain a good number of local slides which the local people will recognize, whether they fall short of the best examples or rival them.

In the counties and rural regions, there are the county libraries and the traveling libraries which are pointing the way for better service. Perhaps home demonstrations in small towns and rural districts could receive no more effective aid than from these libraries, where they exist. Mimeographed lists of articles in periodicals which touch home planning, home furnishing, gardens, home grounds planting and even park planning and planting are to be considered.

It is true that we need more parks, but we need also more appreciative park users, and we need more citizens who know whether the parks in their towns are what they ought to be. The libraries can help the public here only in so far as the editors of magazines and the writers of books and pamphlets include these subjects in their offerings.

Just where the function of a library stops and that of an art museum begins is not clear. But whether space is furnished in a building called a library or in a building called an art museum, it is quite clear that there are unsounded depths which might be penetrated in the possibilities for exhibits in this field. In the American Wing of the Metropolitan Museum of Art in New

York, is an enormously expansive collection of colonial and early American rooms. They are interesting, artistically and historically. But with the increasing number of trained architects, landscape architects, interior decorators, artists, home economists and land economists, we should be able to have exhibitions of rooms and furniture in good taste, as passed upon by a competent jury of specialists. These should be accompanied by estimates of cost if possible. Perhaps gardens and yards would also lend themselves to exhibition. Small models are frequently presented at flower shows. In many places there are small museums of various types which could serve as focal points for distribution of information about housing.

As Better Homes in America accumulates good exhibits of projects entered each year for prizes, perhaps a traveling exhibit of these books, charts, maps, and plans, accompanied by samples of materials and color schemes used for furnishings, hangings and wall coverings, could be circulated around the country and shown in libraries, art museums, schools, or elsewhere, as space could be found by local committees.

In the publication of the valuable material gathered by the committees of the Conference, it is evident that not only will competent editorial service and advice be essential, but also expert librarian service and advice. Bibliographies, to be useful, need to be selective as well as comprehensive; and, more than all, accompanied by notes which will allow readers to judge the reliability of their contents. In addition, there is a well-defined need for popular book-lists on such phases as home building, homemaking, home planning, planning and planting of gardens and yards. Printed in quantities to sell at perhaps a cent or two each, they could be distributed through libraries, bookstores, clubs, committees and associations.

Organization Programs

It is obvious that the suggestions of the Committee on Education and Service involve more than the mere publication of material, however attractive, for the many different audiences indicated; more than the general request extended by the Conference to existing national organizations, and to magazines and newspapers, that local organizations make use of this information in their programs.

Machinery to bring about these results is essential. The Committee on Education and Service, therefore, joins with the Committee on Organization Programs to recommend that there be set up:

A National Institute

which shall be charged with the following functions:

1. To stimulate, guide and supplement research.
2. To stimulate promotion and education, making the maximum use of existing agencies.
3. To serve as a clearing-house for dissemination of information.
4. To continue and expand the demonstration work for home improvement now being carried on.
5. To set up an exhibit service.
6. To provide for national and regional conferences at intervals.
7. To stimulate activity of existing groups and local programs, including the establishment of responsible local groups to promote local interest in home community planning.

This merely proposes a framework which would permit expansion of local agencies to cover the field while it served existing local groups, and which would permit any special groups of local agencies to unite in a national federation or conference, proposed as one of the activities of the national institute in cooperation with existing national organizations. The plan allows great flexibility, but it would provide for that leadership, direction, and impetus which are needed if the program of the President's Conference is to become a part of the lives of the people.

Conclusion

The President's Conference on Home Building and Home Ownership is but the beginning of a serious movement which must be followed through by all the many groups which have something to contribute to the program, as well as by those who may benefit by it. Valuable as is the information that has been gathered, it is recognized by every committee that there is a great deal more information not yet available. Research and fact-finding studies must supplement the present body of knowledge; and the education of the various groups and of the public must be a continuous movement if it is to render a service that will prove of the greatest benefit to the people of the United States.

CHAPTER X

ORGANIZATION PROGRAMS, LOCAL AND NATIONAL

Introduction

Public Opinion and Voluntary Organizations. Public opinion, in so far as it is informed and articulate, is one of the great forces for advancement in American life. In the forming and expressing of public opinion it has long been the habit of the American people to come together in voluntary associations—national, state and local.

If the conclusions reached by the many specialists working with the President's Conference on Home Building and Home Ownership are to be incorporated into actual plans, construction methods, business practices, and local government administration, we shall need many books, pamphlets, newspaper and magazine articles to be read, many radio talks to be heard, many opportunities for visual education through demonstrations, moving and still pictures and other appeals to the eye—in short, direct and indirect education of young and old.

And if the months of cooperative efforts on the part of those working with the President's Conference can be counted upon to influence the current everyday life of home buyers, owners and tenants and homemakers, we shall need, in addition, a mobilization of organized America, working in cooperation with government agencies, educational institutions, editors, authors, and broadcasters of information, to see to it that the recommendations of the Conference are adopted as a working program by each of the official, professional, business, and lay groups necessary to put them into effect.

The suggestions of the fact-finding committees are addressed to many audiences—planners, architects, landscape architects, home economists, engineers, real estate dealers, builders, dealers in building materials, furnishings and equipment, and municipal officials as well as the home buyers, owners and tenants and homemakers.

The Committee on Organization Programs is specifically charged with the duty of proposing an organization set-up which will take into account existing agencies and give new impetus and coherence

to the dissemination of information among the various groups concerning home planning, home building, home owning, home renting, home financing, homemaking, home management, planning and planting of home grounds, streets and parks, city and regional planning, zoning, building codes, and building methods.

Brief Historical Sketch of Growth of Organizations in or Touching the Field. In the early days of the United States when the total population never exceeded the present population of the five boroughs of Greater New York, there were the so-called learned societies which brought together individuals with special knowledge, and there were associations to promote the advancement of the arts and sciences. Before the end of the eighteenth century, agricultural societies were founded in South Carolina, Pennsylvania, and Massachusetts, and these gave their attention "to the improvement of home grounds, to street tree planting and to the preservation and reproduction of the forest."

Professional and Subject-Matter Organizations. The nineteenth century saw an increasing number of voluntary organizations, professional and lay, devoted to special subjects related directly or indirectly to living conditions.

The American Institute of Architects, which came into existence in 1857, now has a Washington headquarters building and publishes *The Octagon*. In the fifties, the agitations by leading citizens of New York concerning bad housing conditions led to the organization in the sixties of a Citizens' Association which succeeded in establishing a Board of Health. In 1910, a group of leaders in the housing movement who for ten years had been active in bringing about improved housing conditions there, established the National Housing Association, an organization devoted to the improvement of housing conditions throughout the country. It holds, at stated intervals, a national housing conference, publishes proceedings, and issues a quarterly called *Housing*. In 1875 the American Forestry Association was launched. The association now has headquarters in Washington and publishes a monthly magazine, *American Forests*. The National Municipal League, organized in 1894, has devoted its efforts to improved municipal and local government, publishes the *National Municipal Review* monthly and issues special bulletins. In 1897 the landscape architects sought to organize, but on the advice of Charles Eliot, son of the late President Eliot of Harvard University, formed

instead a partly lay and partly professional group called The Park and Outdoor Art Association which in 1904 merged with the American League for Civic Improvement to form the American Civic Association, "for the promotion of city, town and neighborhood improvement, protection of natural beauty, and better planning of National, state, and local land resources." The association publishes the *American Civic Annual*, *Civic Comment*, and special bulletins. In 1899 the landscape architects formed the association which is now their professional body—the American Society of Landscape Architects. The quarterly, *Landscape Architecture*, is the official organ of the society. As the engineering profession developed, various engineering societies, civil, mechanical, electrical, municipal, and others have been formed and there is now an American Engineering Council, with headquarters in Washington, organized "to further public welfare wherever technical and engineering knowledge and experience are involved."

In 1908 the American Home Economics Association was organized "to bring together those concerned in developing the art of right living by the application of systematized knowledge to the problems of the home and the community." The association has headquarters and staff in Washington and publishes the *Journal of Home Economics*. In 1909 the American Federation of Arts was organized "to increase knowledge and appreciation of art," and now publishes *The American Magazine of Art*. In 1909, also, the first City Planning Conference was held in Washington, D. C., and the organization formed in 1910, under the name of National Conference on City Planning, continues to arrange annual conferences, and publishes proceedings and special bulletins. The quarterly, *City Planning*, is the official organ of the conference. The American City Planning Institute, organized in 1917, constitutes the professional body.

Local parks are an important element affecting the immediate environment of home neighborhoods, and the American Institute of Park Executives, which includes in its membership most of the local park executives in the country and publishes a monthly magazine, *Parks and Recreation*, is in a position to cooperate with other organizations to increase the park facilities near the homes of the people. A little more remote, but with a definite effect upon the physical environment of many of our people, come the state parks which are the subject of the National Conference on

State Parks, a lay membership organization, created in 1922, which publishes *State Recreation*, a quarterly, and occasional books.

These organizations all have to do with the physical home and its environs rather than with the problems of direct human welfare such as are considered in the organizations affiliated with the National Conference of Social Work, organized in 1873 under the name National Conference of Charities and Correction, or by the American National Red Cross, organized in 1881; though it must be clear to the most casual observer that good housing within the means of those of modest incomes would tend to prevent some of the ills which social workers are called upon to remedy.

Also in an allied field, stressing administration of recreational facilities and acquisition of necessary land, is to be found the National Recreation Association, organized in 1906 "to secure wholesome play and recreation opportunity for young and old; to help cities and small communities establish year-round recreation systems; to make the spare time of America count for citizenship."

Such national professional and subject-matter groups, either because of the special knowledge and training of their professional members or of the special study and direction furnished to their members, have rendered substantial service to the people of the United States. In many instances they have been largely responsible for the setting up of certain Federal agencies and have cooperated with and supplemented these Government services and bureaus. Of recent years the volunteer service of both professional and subject-matter groups has been better focused and made more consecutive by the establishment of permanent headquarters and staff, though the work of such organizations is pretty generally handicapped for lack of funds. It is seldom that membership fees alone will support the kind of service which the American public is being trained to expect. But, inadequate as the work of these and similar professional and subject-matter organizations is admitted by their leaders to be, they have exercised an influence on American life out of all proportion to the number of their members or the size of their budgets.

Women's Organizations. During the nineteenth century the rapid growth of women's clubs which resulted in 1890 in the organization of a federation and which at the turn of the century led to a definitely announced policy of service and a reincorpora-

tion in 1901, has brought women's clubs literally into almost "every village and hamlet and town," into all the large cities, into every state in the Union and into all but about 400 of the more than 3,000 counties of the United States. The 1931 Annual Register of Women's Clubs in America gives over 800 pages to listing the names of the officers of the general, state, county and local clubs. The network of clubs affiliated with the General Federation of Women's Clubs, with headquarters in Washington, has many achievements to its credit. It offers a valuable means for increasing the knowledge of its members and their communities. The departments of "The American Home" and "Public Welfare" furnish information to clubs interested in these fields.

The American Association of University Women, organized in 1882 under the title of Association of Collegiate Alumnae, at a time when alumnae were few, has developed into a national organization with branches throughout the country, with a Washington headquarters building, with staff specialists in education and international relations, and with a quarterly magazine, *Journal of the American Association of University Women*.

The National Federation of Business and Professional Women's Clubs was organized after the great war and now has active clubs in most of the states, maintains a New York headquarters and staff and specializes in vocational guidance, vocational libraries, and scholarship funds.

In the garden field, the Garden Club of America, organized in 1913, aims "to stimulate the knowledge and love of gardening among amateurs, to aid in the protection of native plants and birds, and to encourage civic planting," maintains headquarters in New York and publishes a monthly bulletin. The more recently formed National Council of State Garden Club Federations promises many more garden clubs especially interested in home grounds and yards.

The National League of Women Voters, created following adoption of the Nineteenth Amendment to the Constitution of the United States, is now organized with affiliated leagues in forty-two states, the District of Columbia and the Territory of Hawaii. At the general headquarters office in Washington, there is a staff of specialists, and twenty-four state leagues and thirty-seven local leagues maintain business headquarters with one or more trained

staff workers. The National league, twenty-nine state leagues, and eighteen local leagues publish regular bulletins. The program includes efficiency in government, public welfare in government, and legal status of women.

In 1914 there was organized the Woman's National Farm and Garden Association "to promote agricultural and horticultural interest among women." The association acts as an information bureau and clearing-house for women's agricultural activities and offers scholarships to state colleges and agricultural schools for young women fitting themselves for agricultural and related work. Membership is both individual and through branches. A monthly magazine, *Home Acres*, is published.

There are also a number of women's service clubs united in national groups organized on the plan of the men's service clubs. The weekly lunches offer an excellent forum for disseminating information to the members.

Educational Organizations. Many professional groups in the field of formal education have come into existence, some with membership by colleges or institutions and some with individual memberships. The largest of these certainly is the National Education Association of the United States, organized in 1857, and now having a wide membership of teachers, a Department of Superintendence and a Department of Elementary School Principals. The association maintains a headquarters building in Washington, a staff of specialists and publishes a monthly *Journal of the National Education Association*, and bulletins.

The American Library Association, organized in 1876, exists, among other purposes, "to foster development of libraries and promote the use of books." It maintains headquarters in Chicago, employs a staff of specialists and publishes a *Handbook*, a *Bulletin*, book lists, the "Reading-with-a-purpose" series, and many other books and pamphlets.

In connection with school and home, there have been organized parent-teacher associations, now united in a National Congress of Parents and Teachers, originally organized in 1897, "to promote child welfare in home, school, church, and community, to raise the standards of home life," in addition to a number of other objectives. The congress maintains a headquarters and staff and publishes numerous pamphlets and a monthly magazine called *Child Welfare*.

The American Association of Museums, organized in 1907, "to promote the welfare of museums," maintains Washington headquarters, and publishes *The Museum News and Publications of the American Association of Museums* (New Series). The possibilities for developing museum exhibits in educational programs for better homes, better furnishings, and better surroundings seem most promising.

Business Organizations. The growth of business institutions has led to the organization of trade associations of all kinds—some to foster research, some to gather information, some to advertise their wares, and many to set up "public relations" contacts with potential purchasers. There are those which have to do with commodities and those whose members have service to sell. In the field of financing home building, we have the United States Building and Loan League, the Savings Division of the American Bankers' Association and the Association of Life Insurance Presidents. Closely connected with the business of building homes are the Associated General Contractors of America and National Association of Builders' Exchanges.

The newly formed National Conference on Construction is endeavoring to bring together all the nation-wide business and professional groups concerned with building in order to provide better statistical information, to place the financing of building operations on a sounder basis, and to eliminate avoidable wastes.

The National Association of Real Estate Boards has brought into one national organization most of those who are in the business of laying out subdivisions and marketing homes, as well as those who buy and sell houses and lots. Through a staff, a series of books and publications, the members are being educated to increasingly higher standards for homes and home surroundings.

The uniting of local chambers of commerce and other business organizations in the Chamber of Commerce of the United States of America has, through the service rendered by headquarters departments, the referenda to voice the opinion of member chambers, and the magazine, *Nation's Business*, made this organization at once a source of information and an exponent of business opinion in the cities and towns of the country. The Civic Development Department offers special service to local chambers active in civic improvement.

In recent years the so-called service clubs of business and professional men meet weekly at luncheon in many towns and cities and undertake specific projects for local or national welfare. They are generally united in national and international organizations which maintain headquarters and staff and promulgate programs.

Labor Groups. The various organizations which, among other aims, promote better working and living conditions for labor, such as the American Federation of Labor, The National Women's Trade Union League, and others, are in a position to disseminate sound information concerning home buying, building, owning, financing, renting, homemaking and home management, as well as knowledge of city and regional planning, zoning, parks, and other subjects which have to do with living conditions.

Rural Organizations. For many years the Granges, now united in The National Grange, have offered opportunities for membership in a voluntary organization devoted to various forms of civic improvement. In 1920 the American Farm Bureau Federation was created "to strengthen and correlate the work of state farm bureau federations, to encourage cooperation of agricultural organizations for economic and efficient production, conservation, marketing and distribution of farm products, and advise with representatives of agricultural institutions concerning nationwide policies." In 1919 the American Country Life Association was formed "to better rural conditions through conferences, publicity and coordination of rural social agencies." The association issues *Rural America* monthly, annual proceedings and *Handbook* and *Country Life Book List*. The Farmers Educational and Cooperative Union of America, organized in 1902, "to educate farmers in cooperative practice," is composed of state unions, most of which publish an official weekly program.

Religious and Race Organizations. There are numerous religious and race organizations which will undoubtedly prove excellent agencies for the dissemination of information concerning the findings of the President's Conference on Home Building and Home Ownership, but since most of these organizations, like chambers of commerce and general women's clubs, have many other aims, their activities in this field will be only a part of their work.

Somewhat allied to the religious groups are others typified by Young Men's Christian Associations and the Young Women's Christian Associations, The Young Men's Hebrew Associations

and the Young Women's Hebrew Associations. These not only offer many audiences for programs based on the recommendations of the President's Conference, but provide actual living quarters and in some instances may be able to offer study classes in some phases of the field.

Academies. In addition to the types of organizations outlined, we have also various academies and institutions for research and publication such as the American Academy of Political and Social Science, organized in 1889, "for the promotion of the political and social sciences in the comprehensive sense of these terms." The academy is composed of members and issues *Annals* at regular intervals.

Institutes. Of recent years we are seeing a type of institute or bureau, organized to render a specific service, supported by endowment or grants, without memberships. Better Homes in America, incorporated in 1923 as an educational institution, to bring to the attention of householders a knowledge of high standards in house planning, construction, home furnishing, and home life, and to stimulate activities which will lead to improved housing conditions and conditions of home and family life, is financed through public and private gifts. Its central office in Washington issues publications on subjects related to home building and home-making, and conducts research. The educational program which it sponsors is carried out through volunteer committees of local citizens who adapt the general program of the organization to the needs of their communities.

Juniors. Among the juniors there are the Boy Scouts of America, incorporated in 1910, "to promote through teamwork and cooperation with other agencies the ability of boys to do things for themselves and others"; The Girl Scouts, Inc., organized in 1912 and incorporated 1915, "to give girls through natural, wholesome pleasures, in group work and play, those habits of mind and body which will make them useful, responsible women, ready and willing to take a definite part in civic and national affairs"; the Campfire Girls, organized in 1911 with the aim of developing "the spirit of the home so that it will influence the entire community"; and the Girl Reserve Movement of the Young Women's Christian Association, organized in 1881 to aid girls to put into practice in their communities standards of Christian living.

For older girls, there is the Association of the Junior Leagues of America, Inc., organized in 1921, to unite the Junior Leagues located in cities throughout the country which seek to foster interest among their members "in social, economic, educational and civic conditions in their own communities and to make efficient their volunteer services." The League publishes a magazine nine months in the year.

In the rural field there has been organized through the Co-operative Agricultural Extension Service of the United States Department of Agriculture and state land grant colleges a wide network of girls' and boys' clubs with the title of 4-H Clubs created "to help rural girls and boys to do something worth while in homemaking and agriculture," "to assist rural girls and boys to improve home and farm practices as junior citizens in their own communities and thereby stimulate interest in community progress," and "to train rural girls and boys in community recreation and organization." These have already many notable accomplishments to their credit and offer a promising opportunity for reaching the rural juniors with such parts of the program of the President's Conference as are suitable. A report on organizations for girls, prepared by the Committee on Girls' Work of the White House Conference on Child Health and Protection, is to be published in one of the volumes of that conference.

Local Organizations

We find in local communities two general types of local organizations working for local improvement—those which are entirely independent of any national organization, such as civic leagues, city clubs, planning associations or committees and certain housing associations. Most of these organizations affiliate with one or more national organizations, but they are not controlled by any national association and are entirely free from any overhead national administration. In so far as these organizations have undertaken active, constructive programs, they have been able to throw the full force of their resources toward the particular objectives they have set up. But many local organizations which started on an independent basis have found it advantageous to unite in a federation of some sort, often in a national federation which sometimes subdivides later into state or regional federations. Some of these federations consist merely of arrangements for

annual conferences, with perhaps some correspondence between meetings. A number of them have established permanent headquarters with a paid staff in addition to the volunteer officers. The General Federation of Women's Clubs and the Chamber of Commerce of the United States now have national headquarters buildings, though the Federation of Women's Clubs depends, in its local clubs, very largely on volunteer service and maintains only a small staff at headquarters, while the Chamber of Commerce of the United States maintains a large headquarters building, with departments staffed by specialists in the subjects considered of importance to the business men of the country, and the local chambers almost invariably maintain headquarters and staff. Then there are the local organizations which are directly stimulated by a national body, such as those of the American Association of University Women, the National League of Women Voters and the National Federation of Business and Professional Women's Clubs. Some national organizations which originated in the federation of then-existing local groups have since entered into active campaigns to organize additional local clubs or associations. Within special fields, where the national organizations are in a position to furnish information, inspiration and guidance, the local organizations undoubtedly profit enormously by being part of a nation-wide network of associations bound together for a common cause. There are, on the other hand, many programs of local civic improvement quite unrelated to national legislation of any sort and only related to national programs in so far as subject matter is applicable to local communities under similar circumstances. No independent local organization is able to operate effectively without sources of reliable information; but experiences of other communities and results of research and fact-finding studies may be made available for local organizations without necessarily making them a part of a single national organization or federation. Indeed, most independent local organizations gather their information from many sources, from Federal agencies, from various national subject-matter and professional organizations, from other local organizations; and the need of independent local organizations, entirely apart from any affiliations they may care to make, either national, state or with other locals, seems to lie in the direction of providing some easy

method for consultation in regularly scheduled conferences and through correspondence and printed matter during the intervals between meetings.

The Present Status of Organized Effort in Local Communities. *Larger Cities and Metropolitan Districts.* A catalogue of the local associations having memberships, meetings and places of business for a city like New York or Chicago would form a sizable directory. Even to list those organizations which might fall clearly within the subject matter being considered by the President's Conference or those which might be interested to use some part of the findings of the Conference on programs of meetings or in their publications would require considerable space. But surveying such cities as New York, Boston, Philadelphia, Baltimore, Pittsburgh, Cleveland, Detroit, Chicago, St. Louis, San Francisco and Los Angeles, we find a great divergence in the subject-matter organizations. The professional groups have chapters or representatives in most of the larger cities. But when we look for active housing associations in the larger cities we find them only in New York City, Cincinnati, Philadelphia, Pittsburgh, and Los Angeles. Frequently, local city organizations maintain housing committees. In Pennsylvania, Indiana, Michigan, and recently in Massachusetts, state housing associations which exert local influence are at work. Actual construction of low-cost houses has been fostered by such agencies as the City and Suburban Homes Company of New York, Cincinnati Model Homes Company, Sanitary Homes Company of Washington, D. C., Octavia Hill Association of Philadelphia, City Housing Corporation which built Sunnyside, Long Island, and Radburn, New Jersey. These companies have rendered constructive service, but are rather different in organization and function from housing associations devoted to education and dissemination of information. When we look for planning associations or committees we find such organizations as the recently organized Regional Plan Association in New York City to promote the application of the Regional Plan prepared by a committee financed by the Russell Sage Foundation; we find the Regional Planning Federation of the Philadelphia Tri-State District financed by local contributions, making a regional plan for the area and setting up cooperative relations with the local planning groups, official and voluntary, within the region. In Washington, the Federal City, under the jurisdiction of the Congress of the

United States, national subject-matter and professional organizations, in addition to local associations, have played an active part in the creation and support of the official planning commission. In Cincinnati there is the United Citizens' Planning Committee, a group of citizens, which financed the making of the official plan; but not until the Charter Committee brought about an improved form of responsible local government was it possible to secure the confidence of the people to the extent of voting bond issues to carry out important features of the plan.

A few years ago there were established in different parts of the country city clubs, some of them for men, some for women, and a few for both men and women. At that time there were many lively discussions concerning the function of these clubs. There were those who believed that the city club should offer a forum for discussion and thus command a large membership but should not take action on civic affairs, particularly on controversial questions. The City Club and the Women's City Club of Boston and the Women's City Club of Philadelphia are of the forum type. On the other hand the City Club of New York, Chicago City Club, Portland (Oreg.) City Club and Women's City Club of Cleveland are organizations which undertake active civic programs. Such also is the City Club of Milwaukee, which is composed of both men and women. There are also civic leagues. Perhaps the Civic Club of Allegheny County, Pennsylvania, is one of the oldest and strongest—a club whose membership comprises both men and women and which carries on an aggressive program for civic improvement. The Civic Club of Philadelphia is one of the oldest and most effective women's organizations. The Women's Civic League of Baltimore has been active in civic improvement for twenty years.

But if a complete list of all the housing, planning, and active civic associations in the larger cities were to be made, it would be found that there are some cities in which none of these types exists. Perhaps such organizations have spread less rapidly because they were not united in a national body. Many of the city clubs have made it a part of their charter that they shall not become members of a national organization.

The women's clubs and other organizations, even in the larger cities, through their federations or chapters, have succeeded in fostering special projects of benefit to the community along many

lines, and they may, undoubtedly, be counted upon in the future, not only to continue their activities but to enter more largely into the fields of city planning, zoning and housing than they have in the past.

Most of the larger cities and many of the smaller ones maintain chambers or associations of commerce. Some of these local chambers, which maintain a paid staff of some size, also maintain a civic secretary who can profit by the Civic Development Department maintained by the national chamber in Washington. In some cities the chamber of commerce has taken the lead in civic improvement, city planning and zoning and occasionally in housing. But the preponderance of attention in chambers of commerce appears to be directed to commercial and industrial matters.

In the larger cities there are to be found, usually, real estate boards, associations of the various agencies for financing residential property, organizations of operative builders, contractors' organizations, the various labor groups; but according to the reports of some of the committees of this Conference, there is a great need for correlation of the various groups which have to do with the laying out of land and the production of homes. Evidently, much remains to be done to bring about effective organization of the various business and labor groups in cooperation with the professional and public-interest groups to promote the general welfare of the community. Naturally, in the larger cities, the organizations will be more highly specialized than in the smaller communities, but even in the great metropolitan districts, there seems to be promise of better conditions through close cooperation and coordination of the different elements which contribute to the building and rebuilding of cities and towns.

In the larger cities, the present tendency to create separate organizations to deal with housing, planning and civic improvement may continue to develop. Indeed, there are in the great metropolitan regions often to be found numerous groups working for civic improvement, entirely apart from the lively network of local improvement associations, devoted to all sorts of neighborhood affairs and conducted entirely through voluntary service. Perhaps the housing associations will tend to multiply as separate organizations. Perhaps, also, the regional planning associations will be found to be good correlating organizations, so far as local planning in the region is concerned. For city planning of definite

municipalities, perhaps there will be a tendency to combine the functions of planning associations and organizations for civic improvement, especially where there are official city planning commissions or boards.

But even in the larger cities there is evident a very great need for some methods of correlation between these various organizations working on different phases of the same problems. In some of the larger cities, councils of the officers of the different organizations concerned with civic improvement, including city planning and zoning, have been set up. The discussions of the Committee on Organization Programs disclosed a very general agreement that these councils, even in the larger cities, had proved to be excellent agencies for carrying out, cooperatively, programs of interest to all; but that such councils had not generally proved useful in developing dynamic leadership in the making of programs. In the larger cities where such councils are composed of the permanent staff directors or secretaries in addition to the elected presidents, more continuity has been secured, but even then it seemed to be the consensus of opinion that a progressive program-making body should have more independence than a council of officers of existing organizations could command. In different cities the problem may be solved in different ways. Sometimes an existing organization may become unofficially a leader in program making. More and more, intelligent program making is dependent on the securing of reliable information concerning practices in other cities and the result of long and hard study of increasingly technical subject matter. The conditions in each city will need to be considered carefully in order to discover the best method of providing:

1. Adequate knowledge of the subject matter involved.
2. Leadership in making progressive programs.
3. Cooperation of existing agencies for dissemination of information.
4. Cooperative plan for putting the programs into effect.

Much remains to be accomplished through the correlation of the knowledge possessed by specialists in the fields of land and house planning, zoning, house furnishing, home building, homemaking, and allied subjects in order that individual home buyers, builders, renters, and homemakers may profit by it.

The establishment of home information centers, under responsible control, attached where possible to established educational in-

stitutions of recognized standing and connected by such arrangements as seem feasible with one or more city-wide organizations working in similar fields, would seem to promise a service of real value in cities. A home information center involves a highly organized piece of administration, and its function is somewhat different from the function of an association which advocates or opposes public policies in the fields of planning, zoning or housing. A center or bureau which gives advice in individual cases would probably be in a stronger position if it were operated as a unit and not too closely involved with a membership organization which is obliged to conduct campaigns for changes in legislation and for specific governmental action.

The Smaller Cities and Larger Towns. In the smaller cities and larger towns there are to be found many of the organizations which exist in the larger cities, particularly those which are part of a national network, such as chambers of commerce, women's clubs, parent-teacher associations, garden clubs, Boy and Girl Scouts and 4-H Clubs. But in cities of this size there are few housing associations, no planning associations and only a few civic leagues. Some civic work has been carried on through special projects supported by the more progressive chambers of commerce or women's clubs. The Kessler Plan Association of Dallas has promoted a successful campaign to carry out the Kessler Plan.

It was the consensus of opinion on the part of the Committee on Organization Programs that the most promising form of organized effort would be the development of existing or the creation of a new local association that would give its attention to housing, planning, and civic improvement. It is significant that at the 1931 National Conference on City Planning, Harland Bartholomew, in his presidential address,¹ presented a most searching analysis of the present problem in local understanding and support of city planning:

"Assuming that plans are sufficiently well drawn and presented to appeal to the popular imagination as practicable and desirable, their execution will generally follow as a matter of course. Unfortunately, however, not all comprehensive city planning is sufficiently spectacular to have a great public appeal. It is only the larger aspects of plazas, parks, boulevards, public building groups that create wide interest.

¹"Is City Planning Effectively Controlling City Growth in the United States?" *Planning Problems of Town, City and Region*, New York, The Conference, 1931.

"It is difficult to arouse public enthusiasm about regulation of population density or control of land subdivision plats, which are of far more significance to the ultimate welfare of the city and its people than the more spectacular features just mentioned. It is doubtful if any great measure of public support can be aroused for such things, but unless there is such support or a firm administrative control of these things, any full measure of sound and effective city planning practice is more or less hopeless in American cities, as now organized and operated. Where municipal governments are so quickly and easily responsive, they often mistake the hue and cry of special group interests to be the public will. Some check or safeguard must be interposed between a comprehensive plan once adopted and the whimsical vagaries of special group interests that generate enough noise and smoke to pass for solid public opinion.

"This cannot be done by law. It goes deeper than the law, for the very best laws can always be changed and usually will be in the face of a good high-powered group interest. Our cities need to be organized for sound community planning in order that the demands of special interests can be judged upon their merits.

"In our American cities of today, we are well organized to promote trade and commerce, to lunch and sing and rotate together, in fact, to do most anything except the very important thing of planning our environment. One reason for our lack of organized support for community planning is probably the delusion which has persisted since pioneer days, that as individuals we can each escape the consequences of unplanned growth and are quite unconcerned about those who cannot. As someone has said, we have not truly accepted urban life. . . .

"But how organize public opinion for this purpose? The answer to that question can be found only through painstaking thought and effort. . . .

"Since our municipal life is now so completely organized into special group interests in the form of committees, clubs, leagues and chambers for this and that, why not form another equally well organized, financed and administered for the special purpose of promoting good civic environment as distinguished from political affairs."

The following table used by Mr. Bartholomew shows the distribution of the principal part of our urban population.

24 cities between 250,000 and 500,000=	7,956,228
56 cities between 100,000 and 250,000=	7,540,966
98 cities between 50,000 and 100,000=	6,491,448
185 cities between 25,000 and 50,000=	6,425,693
<hr/>	
363 cities between 25,000 and 500,000=	28,414,335
13 cities over 500,000=	20,828,542

It is obvious that the problem of organizing effectively to promote the subjects covered by the President's Conference will be simpler in the 363 cities with a total population of 28,414,335

than in the 13 large cities with a population of 20,828,542, though it may well be that the 24 cities in the 250,000 to 500,000 class partake more of the characteristics of the 13 cities of over 500,000 population than of those of less than 100,000. But for more than 300 cities, at least, of those over 25,000 in size, it is likely to prove difficult to support more than one citizens' organization, composed of both men and women, and representing all classes in the community, which shall give consecutive study and exert constant pressure to bring about the adoption of a program as deep and as broad as that proposed by the President's Conference. In the larger cities it will be easily possible to support such an organization, where it does not already exist, to maintain a headquarters and staff for the dissemination of accurate information and for the mobilization of public sentiment necessary for the adoption and application of that part of the program which requires governmental action. In so far as it is possible, this is desirable even for a city of 25,000 inhabitants, although sometimes it may be necessary to work, at first, without these aids to really efficient service. But whether such an organization employs a staff or carries on entirely with volunteer service, it is impossible today to accomplish a great deal in subjects as technical as those of planning, housing, and homemaking unless some of the leaders devote a great deal of time to *study* of the subject matter and unless surveys of local conditions are made to determine the particular application of the subject matter to the city.

In the cities and towns in this group, the home information center, if organized under proper safeguards, promises a service which will probably be used rather more generally than in the larger cities where direct advertising and direct contacts are so much more difficult to establish. Also, it has been in cities of this class that the home demonstrations carried on by Better Homes in America during the past ten years have met with the most enthusiasm.

In that much-read book, *Middletown*,² published in 1929, in the more than 500 pages devoted to a description of the life of the residents of a mid-western city of slightly less than 50,000 persons, we have no indication that modern city planning has ever touched

² Lynd, Robert S., and Helen M., *Middletown: A Study in Contemporary American Culture*, New York, Harcourt, Brace and Company, 1929.

the lives of the people, with the possible exception of a reference to an "ideal home" on exhibition in a subdivision which was laid out by a landscape architect brought from Chicago. In this town there was a chamber of commerce, there were the lunch clubs—Rotary and Kiwanis—there was a Y. M. C. A. and Y. W. C. A., there was a country club, a mothers' council, replacing a former P.-T. A. and nineteen women's clubs of which fifteen were federated. There was an organization of business and professional women. And there was a president's club, of a type we have referred to as a council, which met at the chamber of commerce.

The Small Towns and Rural Districts. But after we have considered the 49,242,877 people who live in cities of 25,000 and over, we have 19,711,946 who live in 2,789 towns from 2,500 to 25,000 and another 9,183,453 who live in 13,433 towns under 2,500, giving us a total population of 28,895,399 for the small towns, in addition to the 44,636,770 who live in rural territory.

In a study conducted under the auspices of this committee, six county seat towns were visited in each of two middle-western states, one town a state capital. In these twelve towns there were reported ten chambers of commerce, nine active in some civic work; ten women's clubs, all active in civic improvement; eight parent-teacher associations, of which four had participated in some civic movement; nine garden clubs all active in civic affairs; fourteen service clubs, including Rotary, Kiwanis and Lions, twelve of which took part in civic work; one college club, interested in civic improvement; and some ten scattering organizations which had at one time or another cooperated in civic projects. All the towns had Boy Scout troops. Nearly ten per cent of the total population was reported in the total membership of these organizations, though there were undoubtedly some overlaps.

In an effort to discover the fields of activity of these organizations, we found that of the sixty-nine organizations reported active in some form of civic improvement the following projects were included:

Projects	Clubs Reporting Projects
HOUSES	
Better Homes Campaigns.....	2
Improved Building Codes.....	
Health and Sanitation.....	6

BUSINESS BUILDINGS

Prizes for Improving Appearance.....	11
Control of Signs	7
Appearance of Business Street.....	19

PUBLIC BUILDINGS

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Filling Stations, etc.	5

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Electric Light	2
Gas	
Telephone	
Water Supply	1
Sewer System	1

We further found that of these towns only four had building codes in addition to the state code, five had zoning ordinances, only one had any other method of protecting home neighborhoods, such as restricted subdivisions. In the planning field, five towns had plans for future streets, eight for parks and playgrounds, two for public buildings and none for comprehensive plans for the entire town. Only one town had a planning commission, one a board of appeals, one a planning advisor and one more which had called in a planning advisor on one or two occasions in the past.

The picture here presented shows that most of the local organizations are federated with national organizations or that they are chapters or branches of national organizations. With the exception of some of the chambers of commerce, none had local staffs and few had permanent headquarters.

The projects undertaken by these organizations, as shown in the table, indicate that clean-up campaigns of various sorts were most often included in programs. Extension and improvement of parks and playgrounds came next. Appearance of business streets, roadside improvement, with the planting of trees, shrubs and vines, followed. Very few of the organizations had undertaken any city planning project. The program showed a real interest in town improvement but indicated that those subjects which require a good deal of study to apply intelligently were in the minority. The record of the towns in the matter of building codes, comprehensive town plans and employment of a planning advisor would indicate that the previous interest and work in town improvement projects, the adoption of some zoning ordinances and the existence of some piecemeal planning would make these towns ready for the more serious undertakings which have to do with comprehensive city planning, improvement in building codes and other means of making the homes of the town, new and old, better places in which to live.

As to the organization best fitted to undertake the work, we have, already interested in civic affairs, chambers of commerce, composed principally of the business men, and the women's clubs, composed entirely of women. These organizations will undoubtedly carry on; but in these smaller towns there appears to be a need for some sort of active committee or organization with a membership drawn from all groups in the community, willing to *study* the increasingly complicated subject matter, translate it into easily

understood projects, and prepare a program for accomplishment. The existing organizations could certainly be drawn into such a program. In some instances, it may be that a council of the officers of the existing organizations could form a program-making body, but the objections which have been voiced concerning these councils in larger cities would probably limit their effectiveness in planning constructive programs in the smaller cities, although here, as in the larger cities, the council might prove a very effective medium of realizing a program after it is devised.

Many of the 15,000-odd towns being considered in this section, have benefited from better homes demonstrations. In the smaller communities, demonstrations are comparatively easy to plan and execute, and a large proportion of the population can be reached by relatively simple methods. The practice of Better Homes in America in selecting each year a local committee for demonstrations would still continue. Sometimes this local committee is sponsored by existing organizations and sometimes, the personnel is drawn from these organizations. Since Better Homes in America does not set up memberships of any kind, it is probably desirable to continue this independent arrangement by which the most promising individuals or organization in any town may be selected for the demonstration in any given year. If a new program-making group were set up in some of the towns, it might prove in some cases the best group to undertake the demonstration and in some cases it might not. Flexibility of organization, which provides a place for all existing or new groups interested in civic improvement to function, will probably bring the best results, since the conditions vary so materially in the different towns. Conceivably, home information centers could be operated, where they could be supported, by a permanent civic group, as a department or simply encouraged as a separate institution. If home information centers fulfil the promise shown by the pioneer units, it may be that the state universities and land grant colleges may find a way to strengthen and promote them.

Of the twelve towns studied by the committee, two had populations of less than 2,500, bringing them within the rural classification, according to the Census Bureau. In 1927 Edmund de S. Brunner published a book, *Village Communities*,³ under the aus-

³ New York, George H. Doran Company, 1927.

pices of the Institute of Social and Religious Research, and in the same year issued a book in joint authorship with Gwendolyn S. Hughes and Marjorie Patten on *American Agricultural Communities*.⁴ These books were based on a study of 140 rural towns, situated in different parts of the country. There were 3,000 social organizations in the 140 towns. Most of the towns had some sort of civic organizations represented principally by Red Cross, community clubs, civic leagues, welfare associations, cemetery associations and volunteer fire departments. There were 69 Chautauqua and 54 Lyceum courses. The women's clubs and the parent-teacher associations and the chambers of commerce were responsible for such projects as better libraries, village beautification, clean-up campaigns, purchase of fire apparatus, improvement of public buildings, public health projects and law enforcement. In some of the towns many dormant organizations were found. The Grange, the Farm Bureau and the 4-H Clubs were found in some parts of the country and absent in others. A new impetus was noted from 1920 to 1925 in civic leagues, improvement associations and community clubs. All but four of the 140 towns had at least one civic organization. A majority of the members were women.

The rural towns under 2,500 in population and the strictly rural population are served with a machinery which includes the Extension Service of the United States Department of Agriculture, working in cooperation with land grant colleges to furnish state extension agents. In nearly half the counties there are home demonstration agents working in the field of home economics to improve homemaking and in 2,500 counties there are agricultural county agents working to improve farm practices and farm buildings. Extension specialists in the Department of Agriculture and in the land grant colleges offer technical assistance. Those responsible for the county extension agents urge that the system be spread to cover all the rural counties, but, generally speaking, it must be admitted that in addition to the extension machinery it would be well to increase and strengthen the technical staffs of the land grant colleges in architecture, landscape architecture, town planning, and economics.

They, in cooperation with the specialists of the Department of Agriculture and the extension service could increase the knowledge

⁴ *Ibid.*

of the citizens concerning home planning, home building, home ownership, home renting, homemaking, planning and planting home grounds and town planning and zoning in the rural towns and districts.

Farm organizations, which either in themselves or through definitely established departments are interested in the farm home, would include the local groups of The American Country Life Association, the American Farm Bureau Federation, and The Grange. There are also the local farm loan associations, which are local groups of farmers organized for the purpose of becoming eligible for loans from the Federal Land Banks. These groups promote no program and usually meet but once a year for a formal session, but it may be that they, or other similar groups which may be set up through the Federal Home Loan Banks, will prove helpful in the program recommended by the President's Conference.

The extension of the existing machinery into rural areas not now covered is highly desirable.

The extension services for state universities customarily serve towns of more than 2,500 people as well as the smaller towns and rural districts, whereas the land grant colleges and the Department of Agriculture limit their services to towns under 2,500 and rural districts. There is every reason to expect technical and extension services, from the state institutions at least, which shall include the larger towns and cities. Also, courses in home economics are organized under the Federal Board for Vocational Education in town and rural schools.

On the whole, therefore, with all the limitations which still exist, the rural communities and districts are served with a larger personnel connected with the Federal Government and the land grant colleges than any of the larger towns and cities.

The recommendations for possible new groups to be responsible for program making in connection with the subjects treated by the President's Conference on Home Building and Home Ownership, would apply generally to the larger towns of this group, but the Committee on Organization Programs was of the opinion that county-seat towns, whether they fell in the rural classification or the small town group, offered especially fine opportunities for setting up good organization machinery which would reach not only the county-seat itself but people from neighboring towns and

rural communities who visit the county-seat for business and pleasure. It is recognized that in some parts of the country the county is not the working unit.

Summary of Recommendations for Local Organizations.

With all the array of local organizations working in towns and cities, the fact is, that nowhere is the work balanced or progressing systematically. Everywhere, even in the cities where there is the greatest consciousness of the need and the greatest amount of money available for work, some tasks are being well done, while others, equally important, are being neglected.

It would appear that the conditions in the large metropolitan centers differ so materially from those in the smaller cities and larger towns and even more from those in the small towns and rural districts that no single type of organization set-up could be recommended.

In many of the larger cities and metropolitan districts there already exist separate civic improvement organizations, planning associations and housing groups. Where the need has developed these separate organizations, there seems no good reason to recommend a change, though a close cooperation between such separate groups is highly desirable. In the cities where all these forms of organization do not already exist there may be organized new housing, civic, or planning groups, or it may be possible to combine two or three of the objectives in one organization.

Certainly in the smaller cities and larger towns there is much to be said for a single strong organization composed of all major elements in the community, to focus attention of existing organizations, public officials, and individual citizens on the subjects covered by the President's Conference on Home Building and Home Ownership, and to map out a dynamic program in which different sorts of organizations may stress one project or another, but which will point definitely to better homes, better yards, better neighborhoods, better parks, better streets and parkways, and generally to better living conditions.

In the smaller towns, the Committee on Organization Programs would recommend, in most cases, a strong civic group which would give attention to all three subjects, through departments or committees on housing, town planning, and such special projects of civic improvement as appear to be feasible, including, at the proper time, homes, parks and playgrounds, roadside improvement, town

entrances, better business streets, and public buildings. This group would give special study to these subjects and seek to have them included in the programs of other organizations such as chambers of commerce, women's clubs, or garden clubs, which give attention to many other subjects. There seems to be a very real advantage in having in each town an organization which specializes on information in these fields.

It is hoped that better home demonstrations, such as those fostered by Better Homes in America, will be increased and made useful in many more communities than at present, since the method is proving effective in improving the knowledge and taste of home owners, home renters, and homemakers.

The committee believes that there is much promise in the pioneer home information centers for further development and distribution throughout the country, particularly in cooperation with state and city universities, land grant colleges, other schools, and reliable sources of technical information.

Concerning the recommendations of the various committees of the President's Conference for better coordination of the business groups engaged in laying out land and building and selling houses, it is thought that building congresses, which have been organized in a number of the larger cities, offer promise of better coordination of local programs in the future. In cities which are large enough to justify central inspection bureaus supported by the agencies which finance building, such coordination will probably be realized. Other methods of cooperation between architects, landscape architects, contractors, real estate dealers, and financing agencies will undoubtedly be taken care of by these professional and business groups. The set-up for business groups hardly comes within the field of the Committee on Organization Programs; but wherever business is better organized, voluntary organizations will have an easier task and in any case the voluntary organizations will undoubtedly keep in close touch with the business groups which are producing the homes and distributing the home equipment and furnishings in the community.

It is thought that such professional local groups as the architects, landscape architects, and home economists, where they exist, may render a valuable service by working with voluntary lay organizations. In the small towns, of course, there are seldom chapters

of these organizations and frequently there is not in town a single individual of any of these professions.

National Organizations

Reference has already been made to many national organizations in the United States which have, or might have, some relation to the program of the President's Conference. The great divergence in types, programs, memberships and methods of functioning of these different organizations is at once apparent.

The technical and professional groups have within their membership some of the best trained men and women in the country within their respective fields, but only in a few cases have these associations become possessed of sufficient funds to conduct researches of any magnitude, to bring together the results of very widespread fact-finding studies, or to disseminate the resultant information to large numbers of the public outside their own groups. They are, nevertheless, of great potential value in contributing to the further development of the program of the President's Conference on Home Building and Home Ownership, in educating their own members and in providing leadership in their communities. Most of these groups have passed through the stage of voluntary effort unaccompanied by staff assistance, and now have permanent headquarters and staffs.

The commercial and industrial groups are ordinarily much better staffed and provided with funds for researches and fact-finding studies, though many of the studies have lacked that degree of objectiveness which would make them of the greatest educational value. The notable exceptions to this tendency have commanded very enthusiastic commendation on the part of the public-interest groups. Undoubtedly there is a good field for usefulness through the researches of commercial and industrial groups in so far as the scientific approach and method is preserved in the studies and findings. It may sometimes be found that the field of usefulness of such researches may be widened through cooperation of the recognized public-interest organizations.

Among the voluntary associations we have the large general-purpose groups which foster programs covering a wide field of subject matter and which are composed of many members. Generally, these clubs and associations find it advisable to avoid militant and controversial issues, but they offer exceedingly effective facilities

for receiving and broadcasting information of the kind to be found in the program agreed upon by the President's Conference on Home Building and Home Ownership. In so far as such organizations set up a permanent staff of specialists, supplemented, perhaps, by eminent advisors who may be persuaded to give their services, they can be counted upon as sources of information as well as dispensers of it. If more and better sources of information are made available, it may be that organizations of this type will find it best to specialize in the broadcasting of information rather than in its acquisition through a trained staff, though it is coming to be recognized that the consecutive service of trained specialists, who by constant study keep themselves abreast of the times, is essential to the effective dissemination, as well as to the collection of, any information which rises above the most elementary projects.

The large special-purpose national organizations are usually well staffed with specialists within their fields and if their fields touch the program of the President's Conference at any point they can undoubtedly be counted upon to give valuable assistance; but they cannot be expected to change their objectives, to undertake intensive studies, or to develop a detailed program in fields foreign to their purposes.

Generally speaking, the subject-matter organizations, which usually cover a field somewhat broader than the special-purpose organizations, maintain staffs of trained workers and continue to profit by the advice of eminent specialists among their members who contribute valuable, though usually not continuous, service. Many of these organizations have become veritable bureaus of information, popularly supported, at least in part, by memberships, usually supplemented by contributions from various sources. Many of these associations, in addition to the collection and dissemination of information, play an active part in representing the public interest against mistaken or selfish interests. Organizations which specialize in subject matter in definite fields so that their leaders can command attention by reason of their comprehensive and deep knowledge of the subjects and because of their support by a well-informed constituency of members, are in a strong strategic position when their influence is needed to promote new measures or to prevent reactionary or ill-advised action. There is an element of strength in keeping this type of national subject-matter organiza-

tion on a basis of direct membership, unaccompanied by local branches or chapters, as often the active local civic improvement groups find it advisable to cover a larger field than that covered by the special subject-matter national associations.

National institutes or bureaus, organized solely to serve the public, seldom maintain memberships, though occasionally their service is placed on a subscription basis. This can sometimes be a good arrangement, but in many fields of service which are aimed to promote improvements which communities do not yet recognize their need for, or in cases where the communities which most need the service can least afford to pay for it, the paid-service basis becomes a limitation on the good which ought to be accomplished. Institutes of this character, when well financed, deal commonly in the collection and dissemination of information, directly or indirectly through cooperating agencies. They make information available for the use of local groups, but ordinarily are not so constituted as to make it advisable for them to take dynamic action or to represent public opinion in conflicts between public interest and selfish special interests. They serve a more objective purpose. Indeed they offer a service very similar to that of the Federal bureaus and services, except that they can sometimes be financed for research and fact-finding studies further in advance of the public demand than can the bureaus of the Federal Government which derive their authorization from Congress, ordinarily after a well-defined public sentiment has been expressed.

Such institutes, supplementing Federal Government agencies and cooperating with subject-matter and professional national organizations, could form a fairly impregnable array of reliable information which would prove useful to general-purpose organizations and to such special-purpose organizations as touch the field of the President's Conference without falling actually within it.

Recommendations

A National Institute. This committee, therefore, believes that, nationally and locally, the subject matter of the President's Conference on Home Building and Home Ownership, in its broadest sense, as reflected in the fields of the fact-finding committees, would be given direction, coherence, and impetus if there were to be financed and set up A NATIONAL INSTITUTE covering the field of the activities included in the President's Conference. This

institute would make the maximum use of existing organizations and agencies, would not maintain memberships, and would probably not be militant in the way in which membership associations serve the public interest.

Without suggesting absolute adherence to the functions proposed, the committee recommends that such an institute should have departments which would, roughly, include the following functions:

1. To stimulate, guide and supplement research.
2. To stimulate promotion and education, making the maximum use of existing agencies.
3. To serve as a clearing-house for dissemination of information to prevent duplication of effort and assist in coordinating the work of various existing agencies.
4. To continue and expand the demonstration work for home improvement now being carried on.
5. To set up an exhibit service.
6. To provide for national and regional conferences at intervals.
7. To stimulate activity of existing groups and local programs, including the establishment of responsible local groups to promote local interest in home and community planning.

In further explanation of each of these functions, the committee submits:

1. To Stimulate, Guide and Supplement Research. Research and fact-finding agencies are found in many departments of the Federal Government. Research in subjects touching the program of the President's Conference is a very definite part of the work of the Bureaus of Plant Industry, Chemistry and Soils, Agricultural Engineering, Agricultural Economics, Home Economics, and the Forest Service in the Department of Agriculture; of the Division of Building and Housing in the Bureau of Standards, and the Bureau of Mines of the Department of Commerce; of the Office of Education in the Department of the Interior; of the Children's Bureau, the Women's Bureau, and the Bureau of Labor Statistics in the Department of Labor; and the Public Health Service in the Department of the Treasury.

Some of the national technical and scientific groups conduct researches or gather together the results of information secured by research studies carried on by colleges and other institutions.

Of recent years, some of the foundations have conducted researches or financed researches in a number of fields connected

with the subject matter here discussed, but outside of the Federal Government, researches concerning home planning, building, owning, and furnishing have been few and inadequate, and within the Federal Government it has been impossible to cover more than a part of the field.

Researches and studies are also carried on in many of the state, city, and endowed universities; and perhaps in the fields of land economics, home economics, city planning and zoning, and in other subjects which are included in departments or courses of colleges, there will be made available in the next few years much new information. The Institute for Economic Research, connected with Northwestern University, Chicago, is putting out several series of books and monographs. The Harvard School of City Planning is publishing a series of studies.

But there is need for a service in research which shall:

1. Make available information concerning existing researches.
2. Indicate fruitful fields for researches to existing agencies.
3. Supplement existing and prospective researches where necessary.

2. *To Stimulate Promotion and Education, Making Maximum Use of Existing Agencies.* Though there are a number of organizations in the field which carry on educational and promotional programs, there is much that needs to be done. The entire field is not covered in subject matter, and far too few people are reached with the programs which are being promulgated. A central institute could survey the field and, after aiding existing agencies to function more effectively, could indicate the deficiencies in subject matter and audiences, and make arrangements to fill in the gaps. Many of the larger general-purpose organizations could strengthen their programs through contact with such an institute.

Such an institute would be most essential to the growth and development of home information centers.

But not all the promotional and educational work would be carried on through organizations. There are many other mediums, as are well indicated by the Committee on Education and Service. One of the principal functions of the proposed institute would be to bring into working relations such agencies as the Federal Government services, educational institutions, the press, magazine editors, libraries, museums, representatives of radio educational programs and motion pictures, as well as the various organizations.

Undoubtedly the possibilities for an ever-widening service would

develop after such an institute is set up, but even at this time, it may be confidently predicted that the application of the program developed by the committees of the President's Conference on Home Building and Home Ownership would be hastened and strengthened by this department.

3. *To Serve as a Clearing-House for Dissemination of Information.* It ought to be possible to communicate with some central headquarters where inquiries could be referred to the best source of information or supplied direct with information not available elsewhere. The Committee on Home Information Centers and Services recommends, in any case, that there be set up within the Federal Government a clearing-house of information on subjects covered in this Conference, available from Federal Government agencies. Such a governmental clearing-house would make much simpler the work of the clearing-house of the proposed institute. Both are needed.

In order to bring about improvements in living conditions, as proposed by the President's Conference, a great many groups of professional, business, and industrial workers will need to be influenced. Laws may need to be changed. With specialists working in so many fields, it will not be easy for existing agencies to keep abreast of latest developments unless a well-staffed clearing-house is established for this specific purpose.

4. *To Continue and Expand the Demonstration Work for Home Improvement Now Being Carried On.* Better Homes in America has carried on demonstrations for eight years with marked success and now reaches more than 8,000 communities. Naturally, however, the early years in any activity of this kind, dependent on an ever-increasing number of contacts and working toward an ever-higher standard of accomplishment, only show their full results when the work is followed up and carried on consecutively long enough to permit progressive education in the communities and long enough to reach a satisfactory number of communities.

Since Better Homes in America has operated from the beginning without depending upon memberships in the local communities, the type of service it is rendering could be continued without change in method if Better Homes in America were to constitute this department of the proposed institute. Those who have worked in the home demonstrations in the states are quite cer-

tain that they would have been very definitely handicapped if they had been obliged to persuade the local chairmen and committees to become members of some association. The freedom from such a limitation has made it possible to select a committee entirely independent of any one local organization or to select from year to year an existing organization in a position to conduct the demonstration even though the local organization might be affiliated or incorporated in any one of several national organizations.

5. *To Set Up an Exhibit Service.* Local exhibits are excellent aids to local demonstrations; but in this field, traveling exhibits have not been found to be of as much service as *advice* concerning how to make a local exhibit which has local application and at the same time embodies the principles and standards which have been adopted by the best specialists in each of the fields. It is thought, therefore, that a service similar to that in existence in the social work and other fields, would prove enormously stimulating to local groups carrying on demonstrations and campaigns of various sorts.

6. *To Provide for National and Regional Conferences at Intervals.* It seems to be the general consensus of opinion of those working on the committees of the President's Conference on Home Building and Home Ownership that there should be at least one more conference, preferably called by the President, to report on the application of the recommendations of the Conference and to hear such further recommendations as develop.

The Committee on Organization Programs believes that a continuing conference, to be held annually, biennially or triennially, as may be decided, supplemented by annual regional conferences, would offer an excellent opportunity for bringing together the various national and local groups working in this field. If such existing subject-matter and professional organizations as cared to do so, either planned to hold their annual meeting in connection with the national conference or to send representatives to the conference, and if, in addition, consultants from these organizations were available for advice and the organization literature were on display, it would seem that local delegates could, with a minimum of effort, receive the information, advice, and inspiration which now they can secure only by attending the annual meetings of a number of national organizations.

The National Conference of Social Work brings together a large number of national organizations working in the social field,

to the advantage of all. The American Association for the Advancement of Science brings together another group. The national organizations of sociologists and economists usually meet at the same time and place, and arrange for a number of joint programs. The National Municipal League and affiliated organizations holds annually a conference on government.

Arrangements for a national conference could be sufficiently flexible to include all national organizations which might care to be included and any which might be formed in the future as the result of federations of local groups working in any part of the field. The national conference might be supplemented by regional conferences as the need or demand developed.

The regional conferences might stress the importance of community planning—comprising city, county, regional, and state planning—to the home owner and home builder as creating and stabilizing the value of his home and its surroundings.

7. *To Stimulate Activity of Existing Local Groups and Local Programs, Including the Establishment of Responsible Local Groups to Promote Local Interest in Home and Community Planning.* The present status and the needs for local organizations have already been discussed. This department is suggested as the machinery for the organization of these groups, which would probably be independent membership organizations representing, so far as possible, a cross-section of the community, including both men and women. Locally, these organizations would stimulate interest in the subjects of home and community planning by furnishing a steady supply of information useful for the programs of existing organizations which hold meetings. In some communities, existing organizations may be all that is needed, and, as these new local organizations, where set up, would not be part of any one national organization, there would be no incentive to organize a new association if it were not needed. But it must be clear that the subject matter in the field covered by the President's Conference will require serious continuous study and a specialization which is difficult to secure in organizations with too wide or too narrow fields to include the subjects of this Conference. There is great advantage, also, in work of this kind, in having a group which includes both men and women. The separate men's organizations and women's organizations can then be asked to cooperate in so far as their objectives permit.

Delegates from these local organizations who attended the proposed conferences could make such contacts as they desired with the national organizations represented. They would belong to no one national association, or even in an administrative sense, to the institute, which would be charged with the responsibility of promoting them.

The conditions in the states vary so materially that the committee thought it unwise to lay down hard and fast rules.

Obviously, when state legislation is needed, it is essential that the local groups join in a common legislative program. In each state there are certain state laws and practices which affect local conditions in that state, but are not applicable elsewhere. On the other hand, in some of the larger states, conditions are so different in two or more sections that two or more groups would be needed. The smaller states in some regions join together in regional groups. Ultimately it is believed that state and regional organizations and conferences will play an active part in the organization network in this field, but circumstances will dictate whether a state group should take the lead in promoting local organizations or whether local organizations will join into state, sectional, or regional federations and conferences.

Conclusion

The Committee on Organization Programs submits its report in the full knowledge that it is impossible to devise an organization set-up which in all details will apply to all parts of the country; but the committee does believe that practically all existing national and local organizations, working in the field of the President's Conference on Home Building and Home Ownership, recognize that this work is inadequate and that they need information, aid and encouragement. It is surely clear from the reports of the Conference committees that much research and study on the part of leaders and special groups and much education of the public are needed. It is hoped that the proposed method of organization will prove useful to those who may be charged with the actual responsibility of setting up an agency which shall make a maximum use of technical knowledge without sacrificing on the part of our citizenry that democratic participation through voluntary organizations and that intelligent discrimination which results from popular education, as applied to programs for home and civic improvement, which are essential elements in American life.

CHAPTER XI

HOUSING RESEARCH

I. Introduction

The first essential is a careful understanding and delimitation of the field to be covered. A housing problem may be said to exist wherever the conditions of a dwelling and its premises or the conditions of their use interfere in any way with the well-being or the development—physical, mental, social or moral—of any member of the household. The housing problem, though it grows out of physical conditions, is concerned with matters that are not merely physical. It is concerned with health and safety and also with conditions and effects that must be measured in terms of personality and character. Comfort, convenience, privacy, and the possibility of well-advised home ownership are significant aspects of the problem quite as much as light, ventilation, structural safety and sanitation.

The best-advised housing policy is one which in its negative phase involves the removal of factors from the dwelling and surrounding environment in the residential district which impede the highest type of well-rounded development, and in its positive phase comprises the provision of envioning conditions in the dwelling, premises and residential neighborhood which are conducive to such development. Sharp delineation between factors, physical and social, is not possible. We have houses in order that we may have homes, but the essence of the home may be family affection and family ideals. Housing policy is concerned with provision of the right setting for the best type of individual and family development, but researches in the related fields of child development, domestic relationships and other socio-economic problems may wisely supplement the housing studies and each may be, to some extent, dependent upon the other. Since, however, the primary function of this committee has been to outline the research problems in the specific field of housing, it has been decided to do no more than indicate the related fields and their interdependence and to concentrate attention primarily upon those problems which would be unlikely to be handled adequately in the other branches of research.

In examining the literature of housing and the best researches in this field we have been impressed both with the large mass of

material on the one hand and with the inadequacy of that material as a basis for effective programs on the other. Hundreds of cities and all of the forty-eight states have legislation affecting housing. Such legislation has been framed, as a rule, with little preliminary study of the housing conditions which it is designed to cover or of the results of similar legislation in other states or cities. Past researches have failed in many instances to consider the housing facilities that are actually possible within the income of a family. They have failed to consider that necessary family expenditures must be made for food, clothing, medical care, etc., as well as for shelter; and too often there have followed these researches, recommendations for housing standards too elaborate and too extensive to be met by the family's income—recommendations far beyond the family's capacity to pay.

Past researches in the field of housing also have been fragmentary, few, and scattered. Due to the fact that different methods and different approaches have been used in the various localities where these researches have been conducted, the findings often are not comparable, and therefore do not yield such information as can be applied to other communities. The findings of such researches, thus, have been of little value in solving housing problems outside of the localities in which they have been made.

Unfortunately, also, past housing researches and surveys have been conducted with little or no consideration for the entire field of housing. Architects plan houses without making use of the findings of home economists. Manufacturers design equipment with too little consideration for the dwelling that is to house it or the use that is to be made of it. Farm lands are cut up arbitrarily into lots with little regard for the houses to be built on these lots. Subdivisions are laid out with little attention to the city plan. There has been failure to pool the information of the various housing specialists, such as architects, builders, equipment manufacturers, city planners, sociologists, and home economists, and also a failure to discuss with such groups their specific problems before a specific research is planned.

There has been also in past housing researches a failure to recognize and study the actual needs and desires of the family. The tendency, therefore, has been to build and equip homes with little-used rooms or rooms too large or too small, too much or inadequate equipment, and inconvenient layouts. This has been particularly

noticeable in the failure to recognize the difference in the respective needs of city and farm families.

Such statistical studies as have been made in the past have considerable merit in the aggregate but still leave untouched a considerable field on which information is needed. The censuses by Federal and state governments are widely quoted but interpretations are made from them which could be justified only by studies more elaborate and detailed.

In general, housing research to date may be criticized chiefly on the grounds of its fragmentary nature and its failure to deal with a sufficient number of cases or to deal with them in such a way as to provide convincing answers to questions which must be answered if waste is to be avoided and efficiency is to be gained. This is due in some instances to the lack of competence on the part of the investigators, in part to the lack of financial resources for the studies in question, and doubtless in very large part to the lack of a clearing-house on housing researches—past, present and future—which could inform all investigators of the methods and results of preceding studies in the field in which they contemplate research and could guide them in framing their own research methods, so as to make it possible for them to add to the general fund of knowledge by such studies as they may make. Many past researches may be criticized also on the ground that no provision has been made for the satisfactory utilization of their findings. Perhaps the most outstanding revelation from the study of past researches in housing is of the gaps between such studies. Most of the information essential to effective action is still not available.

A first need is a carefully annotated inventory of all past researches in the field of housing. In this inventory should be included pertinent studies from other countries as well as those that have been made in the United States. Each of the past researches should be analyzed and those which lack scientific merit or which are out of date should be discarded, leaving a list of those original studies which, because of their method and their content, have added to the sum total of human knowledge in this field. Such studies should be examined with reference to the criteria of logic, of statistical method, of laboratory research, and with reference to their pertinence and value in application to contemporary issues, and particular attention should be paid to the

methods of sampling and of conducting the investigations as well as to the interpretation and evaluation of their findings. The beginnings of this compilation have been made by the committees of this Conference but should be carried much farther, following the Conference, by some competent central agency for housing research.

The methods above advocated for the study of past researches should also be applied to researches in process and to those recommended for future study by this Conference or other agencies. All should be coordinated in a much better rounded and more consistent and less wasteful program than now characterizes the housing research of America. At present there are "dabs" of research here and there but no well-rounded program. It would probably be possible through judicious coordination and direction to arrive at much more useful findings at relatively slight additional cost.

Throughout the process of assembling, analyzing, classifying and coordinating all scientific knowledge of the subject of housing, it is essential to bring all the subject matter into perspective, keeping in mind that our major task is to ascertain: First, what blocks or impedes good housing, and second, what promotes or facilitates good housing.

A well-coordinated program of housing research, guided by a well-judged set of objectives, may result in a massing of forces which will get first things done first and others in their proper turn.

II. Proposed Research in the Field of Housing

It has been the privilege of the Committee on Research to examine the reports of the various committees making up the Conference with a view to developing a rational program for future action. Many supplementary suggestions have also been considered. The picture at first presented is one of a vast number of unanswered questions reflecting the difficulties that must be faced in improving present conditions. Undeniably these difficulties are real but they are no greater in magnitude than those faced by others in different fields who have been forced to look back down long vistas of precedents and obstacles. The fact is that we are at a new frontier, a frontier consisting of the wastes, the crudities, and the mistakes of the past. There is much tedious grubbing out

of obstacles as the pioneers grubbed out tree stumps to make land suitable to live on. As with the old frontier in this country, conquest depends upon vigor and the zest for adventure.

Quite properly, the problem of housing was resolved into its elements by the Conference, and these were distributed to various committees for critical analysis. The parts must now be reassembled. If housing research of the past has been incomplete and unbalanced in nature, housing research of the future obviously needs to proceed according to a coordinated method. This method does not involve rigid procedure but seeks to draw the various elements concerned into their proper relationship and to provide objectives the pursuit of which offers the stimulus of real accomplishment.

Too much emphasis cannot be placed on the need for dealing with housing as a whole. For instance, there has been much thought devoted to the development of subdivisions that make suitable provision for traffic, for light and air, for utilities, and for generally agreeable living conditions. There also has been much thought given to necessary standards of sound construction for houses. There has been intensive study of means by which houses could be bought on such a basis that the purchaser could have a fair expectation of carrying through the project. However, the care spent on the subdivision layout may be largely wasted if the other factors are not brought into relationship. If poor housing construction is permitted and if the finance structure is not keyed to the conditions, failure for the promoter and disappointment for the purchaser is an almost inevitable consequence.

When consideration is given to the particular interest of each committee, the possibility for synthesis of subjects under broad headings appears good. Various methods for going about it may be used. The subjects that deal with material things will stay put and can be tested in the laboratory by relentlessly tracking down the variables. Other subjects deal also with social impulses, aspirations, and ideals that are more intangible in nature. Inspecting the committees' fields more closely from the standpoint of research they appear to fall naturally into several groups, according as their emphasis is placed upon problems of environment; structural considerations; financial, business and income problems; appearance and function; and education.

Under environment may be placed the recommendations of the Committees on City Planning and Zoning, Subdivision Layout,

Utilities for Houses, Landscape Planning and Planting, Blighted Areas and Slums, and Housing and the Community.

Under the head of structural conditions may be placed the recommendations of the Committees on Construction and on Reconditioning, Remodeling and Modernizing.

Under the financial, business and income conditions come the recommendations of the Committees on Finance, Taxation, Types of Dwellings, Home Ownership and Leasing, Large-Scale Operations, Business and Housing, Industrial Decentralization and Housing, and Relationship of Income and the Home.

Under the head of appearance and function come the recommendations of the Committees on Fundamental Equipment, Design, Homemaking—Housing and Family Life, Household Management, Kitchens and Other Work Centers and Home Furnishing and Decoration.

Under the head of educational considerations would come the recommendations of the Committee on Home Information Services and Centers.

The reports of the other committees, those on Farm and Village Housing and Negro Housing, except for some special features, contain elements relating to all of the five broad divisions indicated above and require some distribution of their elements among these several divisions.

Like all classifications, the method indicated has its strength and weaknesses. If looked at from some other angle, a different grouping might prove more desirable. The main point, however, is to choose a workable basis on which to proceed with the great number of suggested researches, recognizing that there is considerable overlapping.

The chief underlying purpose of the environmental group may be said to be the creation of safe, healthful, and pleasant community living conditions. That of the structural group is sound and economical construction. That of the appearance and function group is the creation of attractive and convenient living conditions, related to the house itself as distinguished from its surroundings. That of the financial, business and income group is the creation of sound financial relationships that will produce the necessary supply of good housing and enable the individual occupants to pay their bills. There are, of course, other purposes and overlap-

ping aims that bind together the several groups into a unified treatment of the housing problem.

The members of each group should be encouraged by education to see and appreciate the purposes of the other groups, and the bearing of developments in all other fields upon their own particular problems.

The grouping selected, serves to emphasize a phase of the general problem that must be taken into account if progress is to be made either in research or its application. Some of the environmental problems are beyond the capacity of any individual to solve. They call for group action through which the whole community is modeled into a well-planned structure. Trained leadership will serve as always to point out the way in which community life can be enriched. The researches necessary in this field and the specific means of conducting them must be treated broadly. The same can be said, largely, of the financial, business, and income problems. They touch upon large questions of governmental policy, ethical relationships in business, and the degree in which business should interest itself in social developments that promise a low rate of monetary return. In the case of structural and functional problems, the individual has a larger field for solving his problems single handed through self-education in sound building, aesthetics, in the selection of effective household appliances and their uses, and through personal cooperation with trained investigators. Here the necessary research can be described more minutely both as to need and method.

With the responsibility of scanning research needs and indicating a program, the Committee on Research has subjected each possibility to the test of relative importance, chances of obtaining worth while results within a reasonable time, and coordination with other projects in the same group and in other groups. It has been guided largely, but not wholly, by the recommendations of the particular committees concerned. These were naturally preoccupied with their own subjects, and were not in a position to compare their suggestions with others nor to anticipate the inevitable overlapping that has occurred. Out of the sifting process that has been applied has come a series of recommended projects, allocated to the principal groups that have been outlined above. The particular subjects selected are among the more important ones that

have been pointed out as desirable. They have been described according to a uniform procedure in which the need for doing the work is followed by suggestions on the special points that should be cleared up. Supplementing these major projects are marshalled a few selected collateral problems that are worthy of attack when an opportunity presents itself.

A further concentration of effort is possible and will perhaps prove necessary when available instrumentalities for research are surveyed. This would be effected through focusing attention on the core of the housing problem as stated by the President:

"It should be possible in our country for anybody of sound character and industrious habits to provide himself with adequate housing and preferably to buy his own home."

With this statement as a center, a concentric series of related projects of diminishing importance may be set up with certain lines of scientific investigation at the periphery that need to be promoted not only in part for the housing involved but also for more general reasons. These include problems of regional planning, community organization, and general consumer research. While they have their influence on housing, their impact is not so strong, and investigations in some cases are already in capable hands.

Keeping steadily in mind that the primary object of the Conference was to make possible adequate living accommodations for those of moderate and less-than-moderate income, the results of the various researches should be compared to determine what their joint effect will be upon the housing problem. There will have been many desirable suggestions, that, if applied in combination with others equally good, will put the resulting housing accommodations far beyond the means of the group in question. Consequently, there must come a process of selection in which the realities of the situation are faced frankly. This involves many difficulties, as it may mean rejection of some worthy features and a whittling down of others. Good judgment and a sense of proportion are demanded.

In the case of slum clearance and mass production of housing, this realistic treatment of the situation is especially required. If enormous sums are to be spent in rehousing those now living in filthy and dilapidated quarters, stereotyped conventional notions of the necessities in the way of conveniences and equipment may

have to be modified to suit the ability of the occupants to pay. Reexamination of what we are accustomed to regard as essentials and what in some European housing developments are treated as luxuries may have to be made, realizing that evolution rather than revolution may be the wisest procedure. This involves no weakening in attitude toward minimum health requirements but does open up for critical examination the real need for the many attractive decorations and labor-saving devices which only a short time ago were unknown even to families of some means. Research to discover the utmost that can be furnished for the amount that can be paid is fundamental.

Finally, it should be remembered that, although many of the proposed studies deal with statistical abstractions, dollars, bricks, and so on, their ultimate concern is the happiness of human beings pulsating with all the complex emotions of which such beings are capable. To yield to the temptation to look upon individuals purely as "cases," to decide without painstaking investigation what is best for them and what they do not need; to fail in sympathetic understanding of the personal problems and the prejudices that determine why the individual is what he is, is to lack appreciation of the ultimate end of housing research.

III. Suggested Housing Research Projects

A. Environment

1. Blighted Areas and Slums.¹

(a) Subject: Methods of Determining Slum Areas for Clearance

Need. Certain areas are a social and economic liability with clearance as the only remedy, while others are capable of improvement through definite measures. Slum clearance is a difficult and expensive matter. It is important to pick the vital spots and to know how far the improvement must extend in order to exercise a decisive influence over contiguous areas.

Method. Inspection of conditions should be supplemented by examination of the following factors:

1. Historical development of the city and present rate of spread or recession of its slum areas.
2. Health map showing incidence of disease commonly attributed to or associated with bad housing.
3. Records of delinquency and crime, truancy, addresses of criminals

¹ See also recommended research on "Large-Scale Operations," B-6, p. 277.

caught in all parts of the city, malicious mischief, neighborhood gangs, vagrancy.

4. Racial characteristics, occupations, earning capacity of the inhabitants.

5. Reports of dangerous and unsanitary buildings, demolitions, vacant buildings.

6. Records of accidents, particularly street accidents to children because of lack of playgrounds.

7. Records of assessments, sales, and rentals over a period of years to determine trend of values.

8. Fire department and insurance records showing losses and city expenses due to fire hazards including proportion of suspicious fires.

9. Records of charity extended through social agencies of various kinds.

10. Discovery, analysis and evaluation of causation factors in order to ascertain whether improvement is possible without slum clearance by bringing such factors under social control.

The development of a technique is advisable by which the above factors are evaluated and definite mapping of the affected area is made possible.

(b) Subject: Methods of Purchase and Compensation to Owners

Need. To clear a site it must first be freed from much legal underbrush. Neighborhood deterioration may have been due in part to individual development of property without reference to the rights of others but realization of this fact may not lead to acquiescence in unified development. To acquire a large number of lots by negotiation is a slow and laborious process likely to force up prices beyond the point where economical development is possible. Three major methods of dealing with the problem need to be investigated. Besides the individual negotiations mentioned, there remains the possibility of owners pooling their interests, or the acquirement of the land through condemnation. The latter process is not yet thoroughly established as a legal procedure. Its legality and justification need to be clarified for the benefit of those who are willing to devote their energies to slum clearance.

Method. Two major fields of investigation should be covered:

1. Development of a procedure by which owners could retain their interest in their property through stock ownership in a holding corporation while yielding up their right to individual development in the interest of unified procedure.

2. Intensified study of the principles of condemnation as applied to slum clearance with particular attention to the obstacles, constitutional and otherwise, that must be overcome if it is to become accepted practice.

(c) Subject: Replanning the Site

Need. Replacement of existing undesirable structures with new ones obviously must be on the basis of a definite class of expected occupants. Whether this is to be the old population, a large group known to be without adequate housing due to the limitations of family incomes, or a group that would naturally be attracted through proximity to the business district and other features, must be worked out before a definite plan can be considered.

Coupled with this problem is the cost of the projected development in relation to the average income of the probable occupants. Such questions are fundamental to the success of the project and must be answered before it is attempted. Through them the way is opened to consideration of the type of housing that must be provided, hence, to considerations of open areas possible to provide, length of blocks and other engineering features incident to the project.

Method. Consideration should be given to:

1. A survey of income groups that might be attracted to particular areas.
2. A study of the relationship of the average income of those groups to the probable cost of the development in terms of various types of housing accommodations.
3. A study of the open spaces possible to provide on developments at various cost levels.
4. Studies of block layouts in relation to traffic and other needs of specific population groups.

(d) Subject: Cost to the Taxpayer

Need. The taxpayer has not been given an intelligible analysis showing any tangible benefits in crime reduction, disease prevention, and citizenship gained through slum clearance as offsets to possible expense through encouragement of such projects by remission of taxes and other privileges. Loss of taxable values during the demolition and reconstruction period, even where actual tax remission is not made, should not be ignored, but again, in fairness, the incidence of tax delinquencies as compared with other parts of the city, the cost of police, fire department, and public utilities compared to taxes received and other factors should be duly considered. Only when an evaluation of these factors is made that will stand up under investigation will there be a stirring of public consciousness to the economic as well as the social consequences of slums.

Method. 1. Figures should be gathered showing the costs of public protection, utilities, etc., in recognized slum areas compared with other areas and the tax income from each. As one factor, the cost of charity in the slum areas should be evaluated in so far as possible through the records of social agencies, hospitals furnishing free treatment, and other sources.

2. Past and proposed schemes for tax exemption as an incentive to slum clearance should be investigated for their effect on the tax rate as well as their legality in various jurisdictions.

Collateral Research

Further subjects for collateral research in the field of blighted areas and slums are as follows:

- (e) Study of slum clearance in Great Britain and Holland.
- (f) Extent of slum conditions and the amount of their burden.
- (g) Study of physical characteristics in selected areas.
- (h) Historical, genetic study of factors, economic, psychological and social, which produce, extend or reduce slums.

2. Utilities for Houses.

(a) Subject: Research into the Question of Consumer's Requirements and Ability To Pay for Service To Determine the Optimum Development of Utility

Need. The growth of our present utilities has demonstrated the public demand for utility service. While this growth of utility service has marched side by side with city growth, it has lagged in most instances in semirural and rural districts. The "good old days" suffer by comparison with the "good new days" where engineering skill has provided safe water supplies and sewerage systems. No man likes to watch his suburban home burn to the ground because there is no hydrant nearby. On the other hand, the consumer is beginning to demand that the cost of services should bear some relation to their actual value to him.

People today are prone to accept the benefits of utilities without giving much thought as to how they are obtained, but when the bills come in, they ask: "Why is this service bill so high?" Costs hit home. The indiscriminate extension of utilities into outlying districts without proper advance studies of their relation to the development as a whole presents an example sufficient to convince builders, utility agencies and others that advance planning should be carefully worked out. The relation between various subdivision layout systems as they affect utility costs merits attention. However, the pattern of community layout should not be hampered by being compelled to shape itself to fit the utilities. Questions of topography, health, safety, and general amenities, are the foundations of the plan, and it requires vision and study to adapt economical utility service to the main system. Then, too, many questions arise which would provide economies of installation if the answers could be found in a collection of cost data. If a low-cost house is to be provided, the cost of utilities as compared with the cost of the house and the relation of cost of utilities to size of the lot must receive its deserved share of thought. Information should be made available to the buyers of homes in order that they have guarantees as to what services have been installed and what assessments may be levied on them in the future.

Method. Coordination of builders', planners', and utilities' operations through some general agency suggests a method whereby energy will not be uselessly expended. In rural and semirural districts decentralized utilities, properly planned, should be compared with extended utilities for ultimate costs. Research should be directed toward development of a program acceptable to all concerned.

Collateral Research

Further subjects for collateral research in the field of utilities for houses are as follows:

- (b) Location of meters and household appurtenances.
- (c) Computation of the effect of the cost of utilities on the cost of lots for layout other than the rectangular system.

3. City Planning and Zoning.

(a) Subject: A Study of the Population Pattern and Its Effect upon the Cost of Municipal Services and Tax Rates

Need. The population of cities is slowly heaving up in some parts and receding in others. One result is that superposed human strata are tending to overload existing traffic facilities and utilities at certain points and are so thinly disposed elsewhere as to yield too small a proportion of revenue to carry the cost of utilities. Can cities continue to spread over new territory and pay the bills? is a fundamental question.

There is a need for more exact knowledge of the population trend within and about cities as a basis for advance planning. The proportion of various income groups, their tendency to coalesce or disperse, the type of housing favored by each, and the demands in the way of community services that come from them are all fundamental to intelligent treatment of the city's needs. Without such knowledge, assumptions must be made which may be wide of the mark.

Method. The following phases of the problem should be explored:

1. Flow of population to, from, and within cities, primarily for long-range planning of such facilities as playgrounds, schools, and other community services.

2. Consideration of optimum sizes for cities and their distribution throughout the nation.

3. Study of the advantages and disadvantages of providing areas segregated for single-family houses, various forms of two-family houses, and multi-family houses, or of allowing a judicious mingling of types, as disclosed in specific instances in the light of experience.

4. Determination of the relation of population pattern to costs of providing municipal services and to tax rates.

5. Effect, good or bad, of an indefinite spreading of the population outward, with particular application to the possible blighting of intermediate areas.

(b) Subject: Land Values in Relation to the Cost of Local Improvements and Buildings and to Sizes of Lots and Densities of Families in Residential Areas

Need. The two principal items entering into the cost of the home are the cost of the physical structure of the house, and land and utility services. As a result of the studies and investigations being made regarding the possibilities of shop fabrication and large-scale operations, it seems likely that considerable economy will be effected in the item of construction costs. No such economy is apparent in the matter of the cost of the land, except in so far as land values are affected by speculation and the recurrent business cycles. Some studies have been made in connection with the subdivision of land, and the advantages and disadvantages of proposed street layouts have been pointed out, but the studies have not been definite enough to indicate at all accurately

the actual connection between land costs and the several items which affect that cost.

Much data need to be compiled to bring out this actual relationship. The matter of local improvements, for example, is one which is closely associated with the choice of types of dwellings for a given area, and also with the size of lots and density of population. A given density of population will require streets of a certain width, a greater density will require wider streets or a different street pattern and the increase in cost will be reflected in an increased land value. Similarly, the size of lots enters into this question of land values because of the street frontage involved. A narrow, deep lot will bear a lesser proportion of improvement costs than a wide lot, making the row house the most economical from this point of view. But the row house will, in turn, increase the density of population and thus require proportionately wider streets than an area given over to detached houses.

The matter of public utilities presents a similar problem. For a street over a certain width it may be more economical to install the utilities on both sides of the street rather than under the pavement. The question of the future development of the area and the possible demand for utilities must also be taken into account. This demand is dependent upon the density of population which, in turn, is governed by the type of dwelling and size of lot. It may be seen that here the various factors are so interwoven that mere theory is not a sufficient basis upon which to establish a guiding principle.

Method. A comprehensive study is needed of the whole matter of land values as affected by the cost of improvements and utilities, and the density of population. This, preferably, should be accomplished by surveys of areas in different districts and be sufficiently wide in scope to establish a definite relation between the several factors involved.

Collateral Research

Further subjects for collateral research in the field of city planning and zoning are as follows:

(c) The matter of control of bulk of buildings in residential districts including the development of a formula for stating bulk (including height and area) provisions in zoning ordinances in such a way as to obviate present circumlocution and present undesirable standards.

(d) The matter of building lines, set-back and front yard requirements, and the experience under different forms of regulation.

(e) The matter of retaining for public open spaces large private open areas under methods to be determined.

(f) The matter of taxation in relation to zoning to determine what changes are desirable including consideration of the annual use value of land as a taxation basis.

(g) Street, block and lot layout and control of heights of buildings with reference to optimum provision for sunlight for lower floors of multiple dwellings.

4. Subdivision Layout.

(a) **Subject: The Extent to Which Permanent Open Spaces for Recreation Can Be Provided in New Subdivisions, and Methods of Payment for and Administration of Such Spaces**

Need. A reasonable provision of spaces for relaxation and enjoyment of natural scenery without the necessity of traveling long distances is essential. Wholesome community life involves convenient access to spaces where health can be built up and nervous tension can be let down. Without such opportunity much of the beauty and dignity of life is lost. Shortsightedness in failing to provide such facilities has not necessarily brought subdividers greater rewards. Those who have studied the subject are confident that it is possible to supply such facilities and still make reasonable profits on the venture.

The multiplicity of new subdivisions without adequate open spaces is sufficient evidence of the need for scientific study of the problem. These subdivisions, lacking the facilities for recreation of both adults and children, are prone to early deterioration because dissatisfied inhabitants sooner or later move where there are fuller opportunities for a well-rounded life. Mean surroundings frequently lead to mean attitudes, demonstrated in extreme form in the development of antisocial gangs in neighborhoods where no outlet of wholesome energy is possible.

Past experience has shown that the urge to provide adequate open spaces must have some more secure basis than social values in order to appeal to practical men. We must know something of the comparative costs, both for originally providing the space and for subsequently maintaining it. In short, we need to marshal convincing evidence that a fusion of social forces and hard business sense is possible in this direction. Experts tell us that this is so but facts must be produced to support opinions.

Method. The general procedure would be as follows:

1. Investigation of costs, profits, stability of neighborhood, etc., in subdivisions already established where the open spaces provided fall below the minimum set up as necessary for health and general well-being.
2. Preparation of tentative layouts fitted to the same subdivisions, with cost estimates and an evaluation of intangible factors resulting in more satisfactory community life.
3. Similar investigations in the case of subdivisions where adequate open spaces have been provided, with special reference to enhancement of property values and other lessons learned through experience.
4. Development of basic principles so supported by evidence of savings, ready sales, and other factors as to appeal to speculative builders and professional subdividers; study of methods of crystallizing public opinion so that prospective purchasers will demand at least the minimum of recreation space to which they are fairly entitled.

(b) **Subject: Possible Measures for Insuring Land Development in Cities by Neighborhood Units as Distinguished from Piecemeal Developments**

Need. We need to determine how far we can go in more orderly development of areas through combination of individual enterprises into coordinated ones covering a sufficiently large area to deal with all the factors involved. Individualism in land use has produced a patchwork of uncoordinated development, ranging all the way from veritable oases to structures meeting all the requirements of slums except for age. Sober consideration of what all communities will look like twenty years hence, if this process continues, points to the wisdom of studying what measures, voluntary or otherwise, should be adopted to control orderly development. In a growing community, where neighbor is packed against neighbor, with all the problems and irritations resulting from close contact, it is a question whether individual exploitation of land should not yield to larger group developments in which the various factors affecting the inhabitants can be fully considered. This development by neighborhoods rather than by single enterprises would not necessarily hamper the ambitious builder as the means for neighborhood development are studied and understood.

Buyers and tenants find that considerations under which no single developer can exercise complete control affect their daily lives adversely. Traffic hazards to children going to school, inadequate water pressure from undersized mains, and overflowing sewers, are examples of penalties imposed upon the innocent buyer through failure to consider neighborhood requirements. The saving of lives and the removal of inconveniences for people who have staked their life savings for an ideal, is justification for exploring the possibilities of a more unified development.

Method. Three phases of the problem present themselves. One is to investigate the possibility presented by owners pooling their interests in accordance with a master plan voluntarily arrived at through development of public sentiment. Another is the acquiring of large tracts by development corporations with or without special privileges in the form of tax remission and other advantages. A third is governmental control of some sort that is constitutionally possible and that meets with American conception of the role played by government in relation to private enterprises. In each instance the cost to the developer, to the buyer, and to the community must be evaluated.

Collateral Research

Further subjects for collateral research in the field of subdivision layout are as follows:

(c) The relative costs of gridiron street plan as compared with a street plan adjusted to the topography.

5. Landscape Planning and Planting.²

² The subject of landscape planning and planting should also be correlated with that of design in recognition of the close connection between the two subjects.

(a) Subject: Study into the Question of Parkways in the Municipality and in the Country

Need. Future parkway development not only in the municipality but also in the country has come to be recognized as an essential of wholesome living. The slow strangulation of open spaces by large buildings has been checked within the past decade and a decided revulsion has set in, with the result that a decided impetus has been given to planning for park areas. A wise policy of future expansion is needed to retain popular approval and meet the needs of the coming years.

Too often in the past, park areas have been developed as an afterthought to other developments with the result that the public has had to pay excessively for its parks. If one concedes that cities must gradually expand or, on the other hand, if they become decentralized, park areas outside municipal limits become a necessity. The time, then, to plan for these future parkways is in the present instead of continuing the old system of trying to fit them into the puzzle at a later date.

Method. Development of legislation that will enable small tracts to be set aside for future landscaping

Creation of a system whereby sufficient cost data and other necessary statistics will be available to planners in all sections of the country in order that uniform basic principles may be recognized and adopted.

Investigation of methods whereby the public can be made more aware of parkway needs, and methods by which they can individually contribute to the general landscaping scheme.

Collateral Research

Further subjects for collateral research in the field of landscape planning and planting are as follows:

(b) Study of the need for small-grounds service bureaus where for a nominal charge owners may receive assistance.

B. Finance, Business and Income

1. Finance.

(a) Subject: The Elimination of Excessive Charges for Junior Financing on Small Homes

Need. There are good reasons for believing that the greatest hindrance to the sound development of home ownership in the United States is the lack of a well-organized service which will offer, at a reasonable cost, needed credit above the usual first mortgage. It is generally admitted that the elimination of junior financing, or at least an improvement in the method of junior financing, would have a very stimulating effect upon the revival of home construction. It has been stated that two-thirds or more of all home purchase transactions now require junior financing. A reduction in cost of this financing would have a tremendous effect in lightening the burden now carried by a large majority of our home buyers.

The cost of junior financing is excessive as compared with the cost of

first mortgages. This excessive cost is not necessarily revealed in a higher interest rate but rather in the additional charges which are a part of the financing scheme. The excessive annual cost of the second mortgage is not the only feature which makes it burdensome. The cost and annoyance of refinancing is an added disadvantage to this type of mortgage, assuming that it is possible to secure refinancing, which is not always the case. The limited amount of money available in this field, with the lack of competition, naturally tends to keep the price paid for the use of this money very high and, in times of tight money markets, the supply of second mortgage money becomes negligible.

Method. Our existing commercial and financial institutions seem to offer little promise in the way of a solution to this problem, and semi-philanthropic capital is entirely too limited in volume to have any appreciable effect. The advisability of government cooperation parallel to the Home Loan Bank System should be carefully studied. The success of some operations conducted by employers seems to point the way to a possible solution of the problem and an investigation of methods of financing as practiced by these groups may provide the necessary information for a financing plan which will eliminate many of the costs and disadvantages of our present junior financing service.

(b) Subject: A Study of Annual Investments and Expenditures in Housing by Urban Families in the United States and Factors Conditioning Such Expenditures and Investments

Need. Information is needed on the income, expenditures and savings of a large number of urban families, classified according to type and tenure of housing in order to develop a sound housing program for the United States.

A study of expenditures for and investment in housing in relation to family income without figures on the other items of the family budget would not provide the necessary information, as the amounts spent for housing must be considered in relation to all the other items involved in family savings and expenditures. The investigation should be part of a detailed analysis of urban family living.

Past investigations of family living in the United States do not give the information needed by individual families in planning for their own housing or that needed in the furtherance of large-scale housing programs, since they have not analyzed in detail the expenditures and savings of renters, home owners whose homes are mortgaged, and home owners whose homes are owned clear.

Research is needed to provide information on several phases of the problem:

To determine the expenditure and investment practices of different families in the United States as they relate to housing, variations in the other items of family living which accompany variations in these practices, and the factors conditioning these variations.

To determine the income, expenditures, and savings of home owners with homes owned clear, of home owners with homes mortgaged, and of renters, distinguishing families on the following bases:

Types of dwellings: Single-family, two-family, multi-family.

Income levels.

Occupational groups.

Size and composition of family.

Size and geographic location of community.

To collect data on *housing costs* and *investment in housing* in sufficient detail to show separately for owned homes:

Year of purchase.

Purchase price.

Down payment on house.

Yearly payment on principal.

Interest on loan.

Insurance.

Taxes and assessment.

Minor repairs, alterations and renovation.

Extensive remodeling.

To collect and classify data on families who rent to show payments for shelter, heat, and light separately and specific services included in rent.

To collect data on *household operation* to show all the items included in this category with a separation of expenditures for furniture and furnishings into replacements, repairs, care, and additions, and include the latter under investments in furniture and equipment, rather than as part of the annual operating expenses.

To collect data on *investments* to show separately investment in housing, investment in additional furniture and furnishings, life insurance, and other savings and investments.

Data would be analyzed to show:

How much increase in actual expenditures for current housing, household operation, and investment in housing, follows a given increase in income in families of varying composition.

Method. House-to-house visits by well-trained field agents using a carefully prepared schedule calling for detailed figures on family receipts and disbursements during the year just past and the data on owned homes outlined above.

A sufficient number of reports would be collected so that for one city, or for a group of cities where housing conditions are similar, at least fifty families will be represented in each major income group, after the reports have been sorted according to occupation. A study which would be representative of the situation in urban communities throughout the United States, would seem to imply the collection of data from at least fifteen thousand families.

In an investigation limited to families of similar occupation in one city, data from five hundred families would yield valuable results.

Collateral Research

Further subjects for collateral research in the fields of finance are as follows:

- (c) A study of fluctuations in home property values.
- (d) Study of state supervision of savings and loan institutions.
- (e) Analysis of appraisal methods with a view to recommending standard practices in use of terms.
- (f) Land contracts, their utility and weaknesses.
- (g) Work of central inspection bureaus maintained by lending institutions to improve the quality of construction.³

2. Types of Dwellings.

(a) Subject: What Is the Consumer Demand for Dwellings of Different Types?

Need. The basic evil in bad housing has been land overcrowding which in turn has been caused in part by speculation in land prices. The present types of housing, ranging from the single-family house to the apartment, are often closely related to the degree of speculative practices in any given instance. Most one-family dwellings erected by speculative builders are built for sale, while most multiple dwellings are built for rental of units to their occupants.

A present difficulty lies in determining whether the type of dwelling is due to a public desire or whether it is due to the builder's desire to have a new line of "sales talk" to sell his houses. It also is a question as to how far apartment houses are the result of a public desire for living accommodations at a given price level rather than of a public demand. Some studies have already indicated that single-family homes produced for rental might meet a demand that is now being imperfectly met by the multiple dwelling. Further study of this question appears extremely important. Too little attention has been given in the past to the type of housing that would best meet the needs of the low-income groups.

Method. A study of sectional areas to find relations between actual public desire and necessity as represented by speculative building in producing various types of housing. The following points should be considered:

1. Climatic conditions or tradition.
2. Size of the community.
3. Size, income and work habits of family.
4. Municipal engineering projects such as rapid transit, street layouts, parks, zoning, etc.
5. The changing pattern of the population within the metropolitan area, such as the tendency of the upper economic group to move toward the periphery of the community and the tendency of the

³ See also "Methods of Assuring Sound Construction," D-1-b, p. 285.

mobile elements of the population, the rooming house and non-family groups, to become concentrated near the business centers and along the radial thoroughfares.

Such a study should evaluate the luxury and style appeals in the determination of dwelling design and it should furnish basic data upon which programs for more suitable types may be determined.

A study of the relative costs of building and operating housing units in the various types and varieties of houses. Study should be on a basis, as nearly as possible, of:

1. Identical floor area.
2. Identical cubage.
3. Identical number of rooms.
4. Identical equipment.
5. Identical service.
6. Equivalent location.
7. Comparable amenities.

*rental i.e. excluding fuel
calls etc*

Collateral Research

Further subjects for collateral research as to types of dwellings are as follows:

- (b) Conversion practices on residential structures in American municipalities.
- (c) What effect have land values and subdivision practices upon residential types?
- (d) A study of the burdens cast upon the community by different types of dwellings.

3. Taxation.

(a) Subject: The Burden of Special Assessments

Need. Property owners today, and especially owners of homes, have witnessed a gradual increase in the practice of special assessment for streets, roads and certain public utilities. While this practice has many advantages, some abuse of it has grown up through unwarranted optimism on the part of speculative builders, planners, and even municipal officials. Too often the tide of enthusiasm has been successful in developing plans far too elaborate for local needs and causing crushing burdens to the home owner. In cities all over the country owners of land are now in default for special assessments levied against their holdings. A reformation of the abuses of the system rather than abandonment seems to offer the most hope for improved conditions.

Public hearings on special assessment projects have in the past too often been perfunctory and have seemed only to comply with legal requirements. Neither property owners nor the city have had in their possession all the facts necessary for an honest and reasoned opinion as to the desirability of proceedings with the project. A sane correction of this weakness would lead to decided improvements.

Method. A study of the system, now in limited existence, whereby the successive annual amounts required for the support and retirement of the debt incurred for a specific improvement are levied on the values at which the lands within the benefit area, exclusive of improvements, are carried on the rolls for general taxes, to determine if it cannot be applied more generally.

Ascertain a recommended procedure for investigating special assessment projects in order to have the following basic facts at hand:

1. Information on existing land values and improvements.
2. The capacity of individual owners within the district to pay.
3. The probable benefits which will accrue.
4. Outstanding assessments for other future improvements.
5. Existing delinquencies for special assessments.

(b) Subject: The Escape of Tangible and Intangible Personal Property from Taxation

Need. The property tax is universally recognized as the heaviest tax now imposed in the United States. An historical study of taxation in this country indicates that the present tax system has become antiquated. Some years ago land holdings constituted the largest percentage of wealth, so taxes on real property were an effective means of equitably distributing the tax burden. Today, with hundreds of varied types of investments and securities, taxable wealth cannot be measured fairly by real property.

It has become common knowledge that a far larger proportion of personalty than realty escapes taxation, either by outright exemption or evasion of the tax regulations. In a few jurisdictions selected classes of personal property are carefully assessed. But in hundreds of important communities no real effort to tax tangible personal property is made; in thousands of districts only half-hearted effort is made and the major proportion of tangible personal property escapes; while exemption or evasion of intangible personal property is the rule rather than the exception. The result is to throw a burden on real property that is one of the recognized obstacles to home acquisition.

Method. Set up a disinterested committee to investigate and report on the following points:

1. A recommended state set-up to control the general policies of state and local tax assessing and collecting.
2. Possibility of civil service standards for personnel of tax departments, leading to improved methods of assessment and collection.
3. A recommended outline of procedure for a municipal department.
4. Study of tax forms with a view to having a uniform form for use throughout the state.

Investigation by the proper authorities in the various states to discover for their state and municipalities in it whether a light tax on the income from intangible personal property could be effected to reduce local tax rates.

Investigation by the municipalities to determine whether an equitable tax on tangible personal property could not be enforced to reduce their basic tax rate.

Collateral Research

Further subjects for collateral research in the field of taxation are as follows:

(c) Nonpayment of taxes, delinquency, procedure of tax sale and redemption.

(d) The use of fees and special charges in state and municipal finance.

(e) The effects of basing assessments upon annual income value.

(f) The relation between home ownership and tax burdens.

4. Home Ownership and Leasing.

(a) Subject: Basic Economic Information Including Data on Vacancies, Population Trends, and Changing Real Estate Values

Need. Studies are needed to obtain definite and reliable information on trends as shown by vacancies in various types of housing, including the tendency of social groups to shift from one neighborhood to another and the effect of increased supply of improved accommodations upon occupancy and rentals or selling prices of older structures. Included would be the effect of cyclical business changes and population trends upon the extent and nature of vacancies.

Except for occasional local studies and such information as real estate boards are able to compile, there is no really authentic information on just how many residential units are vacant at a given time nor what factors such as overbuilding, doubling up of families, etc., have brought about the particular condition. Without such information, there can be no intelligent correlation between amount of residential construction and potential use. Facts are not now available to show at any given time even approximately whether there are ample and suitable accommodations available for various income groups, whether the supply is increasing or decreasing relative to the demand, and how fundamental economic forces are affecting the situation.

Method. Research procedure would include setting up a uniform method for making vacancy and other surveys so that comparisons between various cities and various periods would be practicable. This technique would then be tested out and corrected where necessary, and continued so that a sufficient body of information would be built up to serve as a basis for judgment. With the facts in hand, the effects of variables such as business conditions, changes in popular taste, etc., would be studied and interpreted for the use of those planning housing accommodations.

(b) Subject: Leasing Problems

Need. Studies are needed to explore the field of relationship between landlord and tenant for the benefit of both and of the community in general. A system of contract requirements has grown up, resulting from the strength

in bargaining position of the two parties concerned, which has never been examined impartially. Practices, such as a fixed leasing date that imposes a heavy burden on builders, moving men, public utilities and others at a particular period, have grown up and could probably be changed with relief to all. The responsibilities of the landlord and tenant for keeping the premises in good condition, and other questions, require examination on the basis of fairness rather than custom and expediency.

Much energy has been directed toward the requirements of the home owner but very little to the situation of the tenant. Many tenants feel, rightly or wrongly, that the emphasis in leases is too greatly in favor of the landlord. Friction between landlord and tenant could probably be substantially reduced if well-defined standards of the responsibilities of each were established and generally understood. There are admitted wastes and irritations in requiring all leases to be executed on one date. There is need for more careful attention to tenants' requirements, such as provision for garage space in apartment houses, with special reference to zoning laws and architectural effects.

Method. Collection and study of leases in effect throughout the country would be made to determine present practices. The justification for each feature would be considered in the light of experience. An evaluation of the wastes resulting from single leasing dates should be made. Analysis of various apartment house features should throw light on how far landlords are really furnishing suitable accommodations or merely providing what they think will be sufficient to attract tenants.

Collateral Research

Further subjects for collateral research as to home ownership and leasing are as follows:

- (c) Trends in home ownership and leasing.
- (d) Insurance.

5. Industrial Decentralization and Housing.

(a) Subject: The Influence of Transportation Systems upon Concentration of Industry

Need. Transportation systems have played a major part in the original location of industries in our large cities. Access to raw materials and distribution of the finished product have in most cases forced industry to locate at the points where these two requirements could be met. The railroad has had a more pronounced influence upon this condition than any other form of transportation in recent years. Also, having forced the industry to locate in large cities in the first place, the railroad, because of its fixed physical structure, has made any change in location of the industry a matter of great difficulty. The present railroad rate-structure has also had an effect upon the location of the industries almost as important as the physical structure of the railroad, tending, as it does, to restrict the movement of industries out of the large cities to the smaller towns.

With the present concentration of industries in the large cities, bringing

with it the attendant problems of housing and traffic congestion, the need for a thorough study of the considerations which so located the industries originally and necessitate the continued occupancy is apparent. Changes in our transportation systems through the increasing use of highways, inland navigation, pipe lines, and possibly airlines, and the general availability of electric power, will probably offset many of the considerations which made the location of industries in large cities desirable or even a necessity. The present tendency toward greater use of these transportation facilities readily indicates that their possibilities are being recognized.

Method. Three major items of this problem stand out as worthy of investigation:

1. The influence of the present railroad rate-structure upon the location of industry and its hampering effect upon the movement to smaller towns; supplementing this, a study of switching limits and charges should be carried out in order that location of industries on the outskirts of the city may be encouraged.

2. The possibilities of changed and improved transportation facilities, such as motor highways, pipe lines and airlines, and of electric power transmission, as applied to decentralization.

3. The possibilities of low-cost water transportation as a factor in the establishment of industries in smaller communities.

Collateral Research

A further subject for collateral research on industrial decentralization and housing is as follows:

(b) Decentralization of large trade and office organizations.

6. Large-Scale Operations.⁴

(a) Subject: Investigation of Governmental Participation in the Housing Field

Need. Studies already made have indicated that over thirty million of our present population are forced to content themselves with substandard housing space, usually discarded by those who are able to get something better. The cost of new dwellings and other desirable housing space as constructed within recent years has been prohibitive for acquisition by the low-income groups. An opportunity presents itself where, by new methods, an almost untouched field—that of housing for clerical and industrial workers whose needs are inadequately provided for under our present methods of finance and construction—could be opened. Tradition has forced builders to stick to the free-standing one-family house, which, when individually built, has not always proved efficient for the group under consideration. Alternative means for providing accommodations that furnish opportunity for a well-rounded life need to be developed at moderate rentals or sales figures.

⁴ See also recommended research on "Blighted Areas and Slums," A-1, p. 261.

Method. Some of the factors which might be examined in order to find out how, and to what extent, government participation in the housing field might be of net benefit are as follows:

1. Collection of statistics to determine what effect tax exemption of housing corporations has on rent scales and how it affects the basic tax rate, recognizing that such exemption is, in effect, a government subsidy.

2. An examination of the present laws governing limited dividend housing corporations with a view to removing unwise restrictions.

3. A review of the laws of eminent domain in order to find out what changes in the present legislation and what new legislation are necessary in order to improve conditions with respect to the assembly of sites for large-scale operations, particularly in the case of rehabilitating blighted areas.

4. A study of the actual need, if any, for large amounts of governmental capital to encourage large-scale housing operations.

Collateral Research

Further subjects for collateral research on large-scale operations are as follows:

(b) Research on unitizing parts of dwellings.

(c) Study of alternatives for governmental subvention.

C. Appearance and Function

1. Household Management, Kitchens and Other Work Centers.

(a) Subject: A Study of Interior Design Including Size, Arrangement, Number of Rooms, Work Area Requirements and Equipment in Relation to Household Operations and Activities Necessary for Comfortable Living, Conveniences and Privacy, for Families of Varying Incomes

Need. This study would reveal the actual interior design needs based on household operations and family activities for families of varying incomes, size and composition, occupations, geographical locations—urban and rural—and for families using paid household service or substitute facilities.

In many households certain rooms provide for far too many activities, others too few. Floor plans and room arrangement studies have heretofore been made with too little regard for actual family activities. The ultimate object of this study is to plan and build houses around operations and activities.

The study would also yield some information on household operation methods from the standpoint of efficiency and short cuts in labor saving. (See Collateral Research, C-1-f, p. 281.)

The project would include a study of equipment based on its uses, to determine its adequacy for required operations, with particular emphasis on as many uses as possible for each item. The study of equipment should be followed by a set-up of standards for improved equipment, if such is

necessary, with approved designs to be labeled in accordance with standard specifications, and to be produced in quantity, and constructed to fit into standard kitchen designs if such is considered advisable.

The main objectives of this interior design and equipment study are to determine the activities around which houses should be built for various type families, to reduce costs of building by eliminating unused rooms or space, to provide space which is more adequate for needs, to determine the needs of household equipment, to set up standards for improved designs of such equipment and of work area requirements in order to reduce costs through quantity production.

Method. 1. Case study of household operations and activities with regard to plan and arrangement of rooms in a specified number of homes of families of various types.

2. Laboratory study of equipment based on needs and the household operations for which it can be used.

3. Evaluation of household operations, equipment and kitchen studies already made.

4. Conferences with architects and builders for the purpose of planning houses to meet family needs, and with manufacturers of equipment for the purpose of setting up standards for approved designs of equipment, and the labeling of this equipment in accordance with specifications, wherever this is advisable.

(b) Subject: The Availability and Utilization of Substitute Services, and the Effect of Such Utilization on the Planning of Houses and Apartments

Need. There is meager information on this subject. Systematic and comprehensive studies in these fields have not been made. Unused space and equipment often are provided in houses for operations that are carried on more economically outside the home. The tremendous possibilities of such studies for economies in house building, for the beneficial modification of family and social life through release from needless drudgery, and for the adaptation to the welfare of young children of certain housing situations now unfavorable to them, are obvious.

There is need for information on the comparison of time expenditures and money costs of goods and services produced in and outside the home, for families of different size and composition, and in communities of different types.

Information on these services should include food preparation of the complete operating type (hot cooked-food supply), laundering, cleaning and general household care, child care (noting that here the basis of comparison is limited).

There is need for determining, if possible, the effect upon individual or family morale of the use of home or substitute services of the types mentioned above.

Families would be distinguished as:

1. Couples without children, with young children, adult groups, individuals with or without children.

2. Both parents employed, one parent employed.
3. Professional or "white collar" working class.

Communities would be distinguished as :

1. City.
2. Suburban.
3. Rural.

To determine the extent to which the provision of common equipment or services in apartment houses or in neighborhood groups would reduce the capital investment and carrying charges per family and increase the availability of labor-saving devices and facilities.

Provision of such equipment or services would enable room space and individual equipment to be reduced, both in apartments and in one-family houses. The study would involve collection of data from existing examples, and a theoretical comparison on the basis of present construction costs, and the costs of labor-saving devices.

There is need for recommendations based on these studies for changes in those parts of the single-family house or apartment house most affected by the transfer of production to outside agencies or its retention within the home.

Method. A great opportunity exists here for widespread controlled demonstrations by semipublic agencies such as life insurance companies, civic organizations, philanthropic foundations or individual philanthropists, or university institutes.

In general it would be desirable to have a project covering each field in each type of community. The constructive planning should be the task of the research groups, which might be made up of psychologists, educators, social workers, architects, practical builders and housing specialists. (It should be noted that this study involves social evaluation and ethical judgment; in fact, a basic philosophy.)

(c) Subject: A Study of Storage-Area Requirements for Efficient Household Production in Low- and Middle-Income Families of Various Type Households in Urban Centers and on Farms

Need. Failure to provide for adequate and convenient storage spaces influences quantity of provisions purchased, which means loss of time and energy. It often causes confusion and discontent with a house otherwise satisfactory. A further consideration is the wear and tear on articles left lying about without proper storage care and protection.

There is need for providing adequate and convenient storage space for efficient household production for various type households both within easy access to and far-distant from markets.

Little information is available on the kind, number, size and shapes of articles to be stored. Information is essential in order to set up standard storage-area requirements for various types of families. Standards would reduce the cost of such facilities through quantity production.

There is need for information on the location of such storage spaces for economy, convenience and attractiveness.

Method. A study of a selected number of families, both near and far-distant from markets, either by the investigator or questionnaire method, or both, in order to determine quantity and types of articles to be stored temporarily and for long periods of time, and also to determine the best storage practices. At least fifty usable reports in each classified group are essential for a representative sample.

Several persons or agencies in different geographical locations might cooperate in conducting such a project. The preparation of the blanks for collecting the data and the analysis of the data should be made by specialists. The cooperating homemakers from whom the data are collected may be selected from women's organizations, urban and rural, professional home economics fraternities and similar groups interested in the problems of the home.

Tentative recommendations for desirable storage facilities should be put to the practical test of several real families, living under specified conditions, before final recommendations are made.

Collateral Research

Further subjects for collateral research on household management, kitchens and other work centers are as follows:

(d) **Wall and Floor Finishes.** Experimentation on wall finishes and coverings in order to perfect a finish or covering which is smooth, washable, durable, and inexpensive; on floor finishes and coverings in order to perfect a finish or covering easily cleaned, durable, resilient, of standard colors, and inexpensive.

(e) **Working Heights.** A study of the influence of heights of work surfaces on energy utilized and on fatigue.

(f) **Household Operations.** Studies in effective methods of performing household tasks to discover the conditions of least waste in time, effort and money in performing household operations, such as preparation of meals, dishwashing, laundering, cleaning, etc. This information would be obtained by means of time and motion studies made under controlled conditions in order to determine the extent to which present practice can be improved by better equipment, better arrangement of equipment, improved methods of performance and simplified standards. (Some of this information would be obtained from the study of interior design, C-1-a, p. 278.)

(g) **Quality Specifications of Consumers' Goods.** A study or investigation to establish quality specifications or grades which would measure the various qualities desired by consumers in the different staple commodities, and which could be used by producers and retailers to give household purchasers a definite basis for selections on the retail market.

Such a study would necessitate: (1) The determining of those qualities which are of fundamental importance to the user in each commodity studied. (2) The formulating of grades or standards which define these qualities. (3) The development of technical methods for measuring these qualities.

(4) Devising of means of labeling or otherwise designating the specifications or grades of a given commodity in order that purchasers may have the information in usable form to assist them in their purchases.

2. Homemaking.

(a) Subject: A Study of the Extent and Manner in Which Human Activities Still Are Preserved and Expressed in Family Life, the Degree to Which Such Activities Are Leaving the Home and the Adequacy of Outside Agencies Which Can Give Them Expression⁵

Need. Few studies have been made on home activities, the course of the day's activities of the individual members in relation to house plan and equipment. Such a study should determine the inadequacies of the present house plan and equipment and what is happening to the individual in the process of the use or absence of equipment or physical features of the house.

It is important to know what is wrong with that which the family possesses and the necessary new equipment or arrangements to improve the lives of the family members.

Such a study should determine also the individual's reactions to elements in his environment which make self-expression possible or impossible.

Little information is available on the home activities that represent partial or complete family participation and the degree of satisfaction experienced in various activities and the relation of such satisfaction to individual participation.

Method. Since each type of family adjustment seems to be a law unto itself, single factors should be selected such as space or number of rooms and correlated with specific activities and not with general success or failure of family life.

Both methods listed below are useful. The second method, although more costly, is to be preferred.

1. Questionnaire used through an investigator but not sent broadcast.
2. Collection of data through actual observation of members of the family over an extended period of time.

The use of organizations for the purpose of gaining entrance to homes is considered desirable. Usually no one agency can be depended upon for all the contacts needed.

Personal observations should be supplemented by interviews with outside persons in contact with the family and the use of the data already on file.

⁵ Most of the researches so far undertaken in this field center upon or at least have important bearing upon this question. If some measure of these home activities and interests can be secured and related statistically to the various types of houses and home locations, it will add much to our understanding of what modern housing conditions are doing to human life and to our ability to plan intelligently for the homes of the future. (See also "Substitute Services," recommended project (b), p. 279.)

The plans for the project may include either the approach to the family as a group or the approach to individual members.⁹

Collateral Research

Further subjects for collateral research on homemaking are as follows:

(b) A study of the housing needs of the family in relation to the ages of the children.

(c) The changes in family life and their consequent effect upon relationships within the family brought about by a move from the city to the suburbs.

(d) A comparison of the developmental activities of twenty-five apartment house families and twenty-five suburban families.

(e) A study to determine the types of family which move most frequently. Are these families in which the mother pursues a profession outside the home?

(f) A study of the goals of family life in a group of apartment house families compared with a group of suburban families as these goals are expressed in the activities of the family members.

D. Structural

1. Construction.

(a) Subject: Possibility of Producing Houses for Low-Income Groups

Need. Figures quoted during the Conference indicate that more than two-thirds of all persons employed earn less than \$2,000 a year. Other figures indicate that an obligation of not much more than twice the annual income should be incurred in buying a home. If these premises are correct, a definite problem is fixed of producing a sound house for under \$4,000. As a matter of fact, it was stated in the Conference that until prices of homes, including land, building and other costs, are brought within the \$5,000 range, seventy out of every one hundred families will be unable to own homes. The problem then becomes one of so revolutionizing the construction industry that houses may be produced at a low cost, not alone for the salaried class but for a much broader percentage of the population. This vast potential market for material and labor with its attendant commercial possibilities should provide the incentive for the needed research into the problem even apart from humanitarian motives.

It is believed by many that the cost of production of houses is the real core of the housing problem, that if substantial economies can be effected they will be felt more quickly than the suggested economies in the other inter-related variables entering into the ultimate cost of housing. Certainly this presents an obvious starting point in the program of more economical housing and one most promising of early results.

⁹ For further details see the report of the Committee on Homemaking—Housing and Family Life, "Homemaking, Home Furnishing and Information Services," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. X, Pt. 1.

Research in the field of design will establish the type of dwelling which is most economical to construct, when all factors have been properly weighed. It is not sufficient to say that the row house is the cheapest to construct simply because the use of a party wall eliminates the cost of one wall. Other factors may have more weight and may determine that another type might be cheaper, at least under certain conditions when the ultimate costs and benefits are evaluated. Multiple and one-family housing theories both have their advocates; research will establish the facts. It may be that the type of house after all is not an important factor in the cost of construction, that methods of production, fabrication and assembly, and choice of material far outweigh any consideration of choice of type.

Due to the experience gained and the proved economies of mass production in the automobile field, attention is being focused on the subject of mass production of houses. While this would appear to offer instant advantages, there are a number of unknown and unconsidered factors involved. The reaction of public taste is one of them. The reception accorded the few attempts along this line has not been enthusiastic, although it has been the results which have been criticised rather than the method of attack. The automobile industry probably experienced the same lack of sympathy in its early stages of development. Another factor is the effect of existing building regulations. Evidence received from those pioneering in this field indicates that present regulations would shut out many of the innovations proposed in connection with new designs and new materials. If economies are to be effected through large units moving off the assembly line in a steady stream after the fashion of automobile production, differences in local building regulations will have to be removed. Otherwise, the necessity for making adjustments to conform to local requirements will reduce or destroy the benefits secured through production in quantity.

If home ownership is taken as desirable, if a considerable proportion of the population does not at present live in owned homes and cannot until houses are produced at a figure within their means, then the need for investigating the possibilities of new materials, new designs, new methods of preparation and assembly of materials is self-evident.

Method. House designs providing suitable accommodations for the average family should be collected and cost studies made of the effect of rearrangement and substitution of different materials for those customarily used. Information concerning new materials and combinations of materials now available on the market should be more widely disseminated. New construction methods are constantly being developed, but this information is not broadcast as much as desirable. Possibly a central organization charged with the duty of collecting and making available to local organizations new developments in house construction would provide the best medium for dissemination.

A study of the requirements of building codes with reference to their hampering effect on the introduction of new materials and methods is needed.

An evaluation of the items entering into the construction of the house would reveal the possibilities for economy. Too little is known of the proportion of the total cost of the completed house which is borne by the shell, the mechanical equipment, and the finish.

The effect of eliminating certain features such as cellars, attics and other storerooms should be studied, and possible savings compared with loss of convenience.

The principal hope of real progress, however, seems to reside in investigation and development of the methods of mass production as practiced in other industries with considerable emphasis on the possibilities of developing altogether new materials and units not used at the present time.

(b) Subject: Methods of Assuring Sound Construction to the Home Owner

Need. There is a general impression, unfortunately founded on a considerable basis of fact, that home owners often find themselves the possessors of flimsy structures that are unsatisfactory as homes and a source of continual expense for upkeep. Such exploitation of the home owner should be stopped. There are several avenues of approach—legal, financial, and educational. The first includes local building regulations and their enforcement; the second, setting up of structural standards by loaning agencies; and the third, dissemination of knowledge on what constitutes sound construction and how it can be recognized, including development of agencies that will examine structures and certify to their condition.

The tragic consequences of finding a lifetime investment faulty in construction and expensive to maintain are not only unfortunate for the individual concerned, but it breeds a cynical attitude that is destructive of the fine impulse for home ownership. Mouth to mouth advertising of unsatisfactory experiences creates an undercurrent of skepticism among those who would benefit most from acquiring their own homes. Probably as much poor construction is due to ignorance and carelessness as to deliberate action. If the waste and misfortune incident to acquiring a poorly built house can be prevented, a major obstacle to good housing will be overcome.

Method. Three means of control should be surveyed. One is the effect of building, plumbing, and electrical regulations. On the whole these probably call for the use of more material than is absolutely necessary but lax enforcement and public indifference permit much poor construction. Emphasis in this direction should be placed on ways in which municipalities may command expert inspection service, perhaps by pooling their resources in the case of small contiguous communities. A second path of investigation is the way in which lending agencies may exercise effective control over quality of construction; insufficient attention to this factor accounts for much poor building today. A third study would take up the certification of houses according to specific standards by private agencies, including possibly the use of certificates as part of the papers passed from owner to owner in real estate transactions.⁷

Collateral Research

Further subjects for collateral research in the field of construction are as follows:

- (c) Labor conserving methods.
- (d) Construction merchandising.

⁷ See also "Collateral Research," B-1-g, p. 272.

2. Reconditioning, Remodeling, and Modernizing.

(a) Subject: Study of the General Principles and Economic Limits of Reconditioning and Remodeling

Need. A large proportion of families live in old houses. Practicable reconditioning and remodeling is necessary: To preserve and increase resale and loan values through prevention of depreciation and obsolescence; to provide safe and sanitary dwellings for those low-income families who cannot afford new houses; and to provide, by needed remodeling, work for unemployed.

There is need for study of intelligent and economical methods of remodeling and uses of materials in order that application may be made of this information wherever the remodeling project permits. There is need also for study of typical houses representing those houses commonly found which have become obsolescent in architectural design and floor plan, in order to determine general principles of remodeling common to all similar houses so that they may better provide sanitation, convenience and other standards of real value in family life. Although remodeling is now considered as a project which is individual with each house, there doubtless are remodeling plans and methods applicable to many dwellings.

If the house can be made to provide for family needs and recreational opportunities, expenditures doubtless may be reduced on outside recreational activities.

Study is needed, also, on the economic limits of remodeling. There should be well-advised appraisal of neighborhoods, study of population trends, zoning and other restrictive regulations, and the actual condition of the structure before extensive remodeling is considered. Some of this information may be so standardized as to apply generally to remodeling projects in many communities.

Method. 1. Study of typical remodeling projects in order to determine best remodeling methods and uses of materials which may be applied generally to remodeling.

2. Study of typical houses, obsolescent in architectural design, including floor plan, and equipment, in order to determine remodeling plans which may be applied to houses similar in type.

3. Study of individual remodeling projects located in typical communities in order to determine those factors which influence the economic limits of remodeling, such as character of neighborhood, zoning and other restrictive regulations, population trends, and the condition of the individual remodeling project. Some of the information obtained from such a study should be applicable generally to communities similar in type.

E. Negro Housing

(a) Subject: A Comparative Study of Different Types of Negro Communities within a City

Need. The effects, both within and without, of Negro communities in the central business zone, in the transitory zone, in the workmen's zone, in the residential zone, and in the suburban zone, should be determined. The

social problem as it affects the whole community, and as it affects those within its particular group, is one which increasingly demands careful attention and thoughtful consideration. It should be recognized that Negro society is not homogeneous, that it has its economic and social gradations, and that it is entitled to share in an opportunity not only to better itself but, at the same time, to increase the standards of the whole community. Closer cooperation in this problem is of major importance. Generalizations must give way to specific problems in order to attempt a solution. Responsibility must be assumed not only from within, but the community must awaken to its own responsibility.

The concentration of Negro population in urban areas within the past decade emphasizes the fact that coordinated study is of vital necessity. Areas slowly overcome by obsolescence, and unsanitary and dilapidated because of this fact, have been inherited by the Negro population chiefly because nothing else was available. Few attempts have been made to consider the housing needs of this part of the population. Squalid conditions do not promote community spirit. Inspectional service common in other areas is dispensed with to a large extent in the areas in question, and therefore there is little or no effort made to enforce building and sanitary regulations. A problem of this nature can not be worked out by ignoring it. The facts must be brought out clearly so as to focus that attention on the situation which will result in a correction of these conditions.

Method. 1. Investigation of the housing needs of Negroes of all classes giving attention to physical factors, economic factors, and social factors.

2. An investigation of the relation of the pattern of Negro communities to the complete pattern of the municipality in order to improve all types of communities.

3. Methods studied and proposed whereby a supply of adequate new housing will relieve the pressure on congested areas.

4. Development of a special system of inspectional service that would enforce building and sanitary regulations.

5. Possibilities of further encouragement or development of civic and other organizations within the Negro population whose aim will be to take the lead in educational programs for civic betterment.

(b) Subject: A Study of Changes in Land Value Incident to Inception of Occupancy of an Area by Negroes

Need. The entrance of the Negro into a white community often results in an immediate apparent depreciation in land values. The same condition quite often results from other racial or immigrant invasion or from commercial and industrial encroachment. No study has, however, been made of the long-time effect upon land values of Negro settlement. Negroes frequently acquire sites in the direction of business and industrial growth. At times, Negro property owners are able to take advantage of the rise in property values, but more often, the reverse has been true.

In certain cases where clashes have occurred upon the invasion by the Negro of a white residential area, a period of quiet follows in which it would seem that the Negroes have been kept out. But an actual study

shows that in many cases the reverse has been true. The Negroes really have acquired property, and their progress of penetration has continued peacefully until they have obtained possession of the neighborhood.

Stabilization of land values within a city is and has been a problem of each generation and the whole fabric of housing is interwoven with its threads. Many of our cities have already witnessed the physical changes in areas where Negroes have rented or bought property. Very few of these cities have made any effort to determine scientifically the real effect of these changes on property values. Analyses of rent schedules in these areas, before and after the changes, have been made in a few instances but more are needed in order to broaden the bases for any conclusions that may be drawn. The actual-value figures will not only point the way to more equitable results for all concerned but will also be of invaluable assistance in finding the best roads to improvement.

Method. 1. Set up an appraisal agency which would keep land-value records for a sufficient period of time to enable sound conclusions to be drawn from them.

2. Evaluation of land values in all districts which have been subjected to radical change because of population, industrial, or commercial changes.

3. A study of the basic factors causing the changes in order to coordinate them with logical and orderly development.

Collateral Research

Further subjects for collateral research on Negro housing are as follows:

(c) A comparative study of the movement of Negro population in northern and southern cities.

(d) Density of population in Negro settlements, and density and height of buildings.

(e) A study of rents in Negro neighborhoods.

(f) A study of the protection of Negro districts from the proximity of vice resorts.

(g) Negro rural housing.

(h) Standards of living of the various economic classes of the Negro population.

(i) Standards of living of the Negro families in the North and South.

(j) A study of Negro home ownership.

F. Farm and Village Housing ⁸

(a) Subject: Housing of Migratory Labor

Need. The housing of migratory labor for farm, forest, and construction jobs has always presented a problem. Men have customarily done the

⁸ Many of the construction, remodeling and function problems discussed under other headings bear equally on farm and village housing. See recommendations for research contained in the report of the Committee on Farm and Village Housing in "Farm and Village Housing," *Publications of the President's Conference on Home Building and Home Ownership*, Washington, 1932, Vol. VII, Ch. XXI.

work in the logging camps and construction camps and their housing has not been considered of so much importance. With projects such as Hoover Dam, which are extended over a period of years, the housing of families in such camps takes on real importance and features of sanitation and comfort must be looked into more carefully than in the case of the logging or construction camp occupied only by men.

With the spread of truck farming, the migratory labor problem has arisen on the farm. Now we have tremendous seasonal crops in different parts of the country with a short harvesting period which requires large quantities of labor for a very short time only. The work is of a nature that can be done by women and children as well as by men, and hence we find whole families following the harvests of the different crops from one locality to another.

The problem of housing this class of floating labor is admittedly difficult. The fact that the season is short and the period of occupancy limited, has induced employers to provide housing which will furnish the minimum in the way of shelter. In many cases camp sanitation is utterly neglected and comfort is unknown. Overcrowding is the established order, and disease-breeding and disease-spreading agencies are allowed full play. The social and economic effects of such conditions are vitally important in many communities.

Method. Regulations governing the proper construction, sanitation, and maintenance of housing for families of migrant workers should be developed. They should be in the form of a code of minimum standards which would include simple, practical building plans to meet the needs of employers preparing to build or remodel labor camps. Such plans should take into account the seasonal occupancy of the buildings and the difference in time occupied, that is, whether permanent or temporary camps.

Information should be assembled and made available to those interested, covering existing deplorable conditions and what is being done to improve them. The experience gained in housing the workers at Hoover Dam and similar projects should be utilized. Research into the cost of suitable temporary housing is also necessary.

IV. The Need for a Housing Research Foundation

Centralization of the research program in the field of housing appears to this committee to be indispensable as a means to effectiveness; otherwise, the subject will be covered in a piecemeal manner and much time, energy and money will be frittered away in odds and ends of imperfectly coordinated research. The formation of a central research institute or foundation for research in the field of housing is judged to be desirable as the field is sufficiently large for such a foundation and as too close amalgamation of housing research with other branches of social and economic research has resulted in neglect of subject matter such as has been shown by

this Conference to be most important. However, it is true that a housing research foundation should maintain such relations with the Social Science Research Council and other special agencies, public or private, for social and economic research, as will render its work in the highest degree efficient.

The housing research foundation or institution should include a working staff and advisory boards of the most highly trained persons in the field. The funds at its disposal should be sufficiently large to enable it to handle work on an adequate scale and in strict conformity with scientific standards. It should be in a position to elicit the cooperation of government departments, universities and other institutions of learning, existing research organizations and laboratories, and of business and civic organizations, whose aid would be useful in carrying out its investigations.

The Activities of the Foundation

The purpose of the foundation would be to:

1. Serve as a clearing-house on researches, surveys and information on technological experimentation.
2. Recommend researches and surveys, types of organizations to carry on such researches, and procedure for specified types of research.
3. Conduct such researches as should be conducted by a national rather than a regional, state or local organization.
4. Correlate and evaluate results of studies and surveys in order to intelligently apply the results and conditions in other localities.
5. Provide and maintain a scientific library on housing.
6. Issue annotated bibliographies of worth while past researches and those in process.

Position of the Federal Government

It may be asked why this function should not be lodged in some branch of the Federal Government. Excellent research work has been done and is being done in appropriate portions of this field by the United States Bureau of Standards, the Division of Building and Housing of that Bureau, the United States Public Health Service, the Bureau of Home Economics and the Bureau of Agricultural Engineering of the United States Department of Agriculture, and the Bureau of Labor Statistics of the United States Department of Labor. Many contributions to the literature of housing have come also from the Bureau of the Census of the Federal Department of Commerce, the Children's Bureau of the Depart-

ment of Labor, and various other branches of the Federal Government. More perfect coordination of these services might have merit. Certainly the functions which they already perform are proper fields for public activity.

Outstanding among the functions of Government in the field of housing research is that of collecting such data as require periodic revision. Testing and research to establish and disseminate technical standards are also clearly public functions. Intensive special studies by Federal agencies are often possible and desirable.

Scope of Housing Foundation

A permanent research foundation for housing should not be a branch of the Federal Government but should be privately endowed so that it may have:

1. Maximum elasticity.
2. Entire freedom in the selection of subjects of investigation.
3. Opportunity for rapid initiation of new research projects.
4. Freedom to make studies of interest to highly specialized groups but not of immediate general public interest.
5. No hesitancy in stating and publishing freely its evaluation of conditions, methods and practices.
6. Opportunity to cooperate in projects through which the findings of the researches should be followed up.

Coordination of Research, Service and Demonstration

The recommendations of this committee should be coordinated with those of the Committees on Home Information Services and Centers, Education and Service, and others.

It is suggested that the proposed housing foundation might consist, in addition to its administrative department, of:

1. A Research Division.
2. A Service and Information Division.
3. A Demonstration (or Local Organization and Programs) Division.

It is our belief that such an organization, judiciously assembled and adequately underwritten, would exercise a profound influence upon future housing conditions in America and could be made to lead to a quite general and rapid improvement in standards of living as well as to provide a more general opportunity for healthful and wholesome development on the part of our citizens, young and old.

PART III. APPENDICES

PART III. APPENDICES

APPENDIX I

PROGRAM—THE PRESIDENT'S CONFERENCE ON HOME BUILDING AND HOME OWNERSHIP

WASHINGTON, D. C., DECEMBER 2 TO 5, 1931.

WEDNESDAY, DECEMBER 2, 1931

9:00 A. M.

REGISTRATION

Conference Headquarters, 400 Fourteenth Street, N. W.

8:30 P. M.

GENERAL SESSION

Constitution Hall, 18th and C Streets, N. W.

Concert—United States Marine Band,
Captain Taylor Branson, Conducting

Invocation—Reverend Joseph R. Sizoo,
New York Avenue Presbyterian Church

Address of Welcome—Honorable Robert P. Lamont,
Secretary of Commerce

Address—The President of the United States

Benediction—Reverend Coleman Nevils, S.J.,
President, Georgetown University

Beginning at 9:00 P. M., the program will be broadcast over the national network of both National and Columbia Broadcasting Companies

THURSDAY, DECEMBER 3, 1931

9:30 A. M.-12 Noon

COMMITTEE MEETINGS

City Planning and Zoning

Willard Hotel, Large Ballroom
Pa. Ave. & 14th St., N. W.

Committee Chairman—Frederic A. Delano,
Chairman, Committee on Regional Plan of New York
and Its Environs,
Chairman, National Capital Park and Planning
Commission

Presentation of General Report—Frederic A. Delano
The Neighborhood Unit—Charles W. Eliot, 2d
Subdivision Regulations—Alfred Bettman
Decentralization of Industry and Housing—Thomas Adams
Zoning—Miss Harlean James
Population Pattern—Harland Bartholomew
The Importance of City Planning and Zoning to the Developer—Edward A.
MacDougall
DISCUSSION

Types of Dwellings

Willard Hotel, Small Ballroom
Pa. Ave. & 14th St., N. W.

Committee Chairman—John Ihlder,
Executive Director, Massachusetts Housing Association,
Executive Director, Pittsburgh Housing Association

Presentation of General Report—John Ihlder
Social Needs of the Community as Met by Different Types of Dwellings—
Robert Whitten
Effect of Land Values upon Types of Dwellings—Arthur C. Holden
Apparent Demand for Multiple Dwellings and for One-Family Dwellings
as Shown by Statistics—Thomas S. Holden
The One-Family House as an Investment—H. Morton Bodfish
The One-Family House as a Rental Proposition—Harris Ginberg
Social Values of the One-Family House and of the Multiple Dwelling—
Arthur Evans Wood
DISCUSSION

THURSDAY, DECEMBER 3, 1931

Fundamental Equipment

Chamber of Commerce of the United States, Room N
1615 H St., N. W.

Committee Chairman—Collins P. Bliss,
Dean, College of Engineering, New York University

Heating, Ventilating and Air Conditioning—Arthur C. Willard

Plumbing and Sanitation—A. E. Hansen

Electric Lighting and Wiring—E. W. Commyery

Refrigeration—Miss Louise Stanley

DISCUSSION

Design

Chamber of Commerce of the United States, Room I
1615 H St., N. W.

Committee Chairman—William Stanley Parker
President, Architects' Small House Service Bureau, Inc.

Presentation of General Report—William Stanley Parker, John Taylor
Boyd, Jr.

Outline Addendum—Henry Wright

DISCUSSION

LANTERN SLIDES

Housing and the Community

Auditorium
400 14th St., N. W.

Committee Chairman—Joseph Hersey Pratt, M.D.,
Former President, American Climatological and Clinical
Association,
Former President, American Society for Clinical
Investigation

Housing and Health—Milton J. Rosenau, M.D.

Housing and Safety—Morton G. Lloyd

Housing and Delinquency—Clifford R. Shaw

Housing and Industrial Efficiency—William Irving Clark, M.D.

Housing in Relation to Education, Recreation, and Citizenship—Mrs. Eva
Whiting White

DISCUSSION

THURSDAY, DECEMBER 3, 1931

2:30 P. M.-5:30 P. M.

Subdivision Layout

Washington Hotel, Rose Room
Pa. Ave. & 15th St., N. W.

Committee Chairman—Harland Bartholomew,
President, National Conference on City Planning

Facts the Home Builder Should Know about the Location of His Home—
Harland Bartholomew

Methods of Procedure for the Subdivider—William C. Miller

Modern Principles of Subdivision Design—Jacob L. Crane, Jr.

Relation of the City Plan Commission to the Subdivider—Robert Whitten
Effect of Subdivision Design upon the Cost of the Home—Henry V.

Hubbard
DISCUSSION

Kitchens and Other Work Centers

Chamber of Commerce of the United States, Room N
1615 H St., N. W.

Committee Chairman—Miss Abby L. Marlatt,
Director, Courses in Home Economics, College of Agri-
culture, University of Wisconsin

Chairman's Report on Kitchens and Other Work Centers—Present Practices
and Trends in the United States and Europe—Miss Abby L. Marlatt

Work Area and Storage Space Required in Rural, Village and Urban
Dwellings as Determined by Analysis of Home Needs—Miss Maud Wilson

Laundries in Dwellings—A Study of Trends as to Arrangement, Equipment
and Use in Relation to Size of Dwellings and Different Family Situations
—Miss Evelyn H. Roberts

Application of Efficiency Study to Arrangement and Equipment of Kitchen
Meeting Different Home Situations—Miss Louise Stanley LANTERN
SLIDES

Cost Reduction and Standardization of Built-in Working Areas and Surface
Finishes—Henry E. Wichers

DISCUSSION

Large-Scale Operations

Washington Hotel, Hall of Nations
Pa. Ave. & 15th St., N. W.

Committee Chairman—Alfred K. Stern,
Director, Julius Rosenwald Fund

Presentation of General Report—Alfred K. Stern, Henry Wright

Discussion of Report—Louis Brownlow, W. A. Starrett, Henry Wright,
Coleman Woodbury LANTERN SLIDES

THURSDAY, DECEMBER 3, 1931

Construction

Auditorium, 400 14th St., N. W.

Committee Chairman—Albert P. Greensfelder,
President, Associated General Contractors of America

Presentation of General Report—Albert P. Greensfelder

New Methods of Construction—Arthur C. Holden

Construction of Large Housing Units—W. A. Starrett

Construction Problems in the Modernization of Slums—E. M. Craig

How to Select a Responsible Builder—George B. Walbridge

Certified Construction Bureaus—William H. Miller

Constructing Public Utilities to Service Homes—Anton Edward Horst

Home Construction from an Operative Builder's Viewpoint—William C. Miller

DISCUSSION

Negro Housing

Rooms 1844-50, 400 14th St., N. W.

Committee Chairman—Miss Nannie H. Burroughs,
President, National Training School for Women
and Girls

Physical Housing—Urban

Presentation of Report—Mrs. Irene M. Gaines

Discussion Leader—George R. Arthur

Physical Housing—Rural

Presentation of Report—Leon R. Harris

Discussion Leader—Mrs. Florence C. Williams

Social and Economic Factors

Presentation of Report—Mrs. Lena Trent Gordon

Discussion Leader—T. Arnold Hill

Financing Home Ownership

Presentation of Report—John E. Nail

Discussion Leader—Robert R. Moton

Negro Housing and the Community

Presentation of Report—Lorenzo J. Greene

Discussion Leader—Charles S. Johnson

SUPPER MEETING 6:00 P. M.

Organization Programs, Local and National

Willard Hotel, Palm Room

Committee Chairman—Miss Harlean James,
Executive Secretary, American Civic Association, Inc.

Public Opinion and Voluntary Organizations—Albert Shaw

National Organizations and City and Regional Planning—U. S. Grant, 3d

Professional Organizations and Better Homes and Homemaking—Miss
Helen W. Atwater

Needed—A New Grouping for National Organizations—Howard W. Odum

State Organizations and Community Planning—J. H. Montgomery

Rural Organizations and Better Homes and Gardens—Philip H. Elwood, Jr.

Better Homes Demonstrations—Mrs. William F. Lake

THURSDAY, DECEMBER 3, 1931

8:00 P. M.

Blighted Areas and Slums

Chamber of Commerce of the United States, Room I
1615 H St., N. W.

Committee Chairman—Abram Garfield,
Fellow, American Institute of Architects

Presentation of the General Report—Abram Garfield
State Aid, Eminent Domain, and Excess Condemnation—Murray Seasongood
District Replanning—John Taylor Boyd, Jr.
The Possibilities of Reconditioning Properties—John Ihlder
Cooperative Housing—Aaron Rabinowitz
The Financing of Rehabilitation and Rebuilding of Slum Districts—Dwight
L. Hoopingarner
DISCUSSION

Household Management

Washington Hotel, Hall of Nations
Pa. Ave. & 15th St., N. W.

Committee Chairman—Miss Effie I. Raitt,
Head, Department of Home Economics, University
of Washington

Presiding—Miss Frances L. Swain
Presentation of General Report—Miss Effie I. Raitt
Money Expenditures in Relation to Housing—Miss Faith M. Williams
Time and Energy Expenditures in Relation to Housing—Miss Maud Wilson
Reflection of Values and Changing Needs in House Planning—Mrs. Ethel
Puffer Howes
Research Recommendations—Miss Effie I. Raitt
The Future in Research—Miss Sybil Smith
DISCUSSION

Taxation

Chamber of Commerce of the United States, Room N
1615 H St., N. W.

Committee Chairman—Thomas S. Adams,
Professor, Political Economy, Yale University

Presentation of General Report—Thomas S. Adams
Effect of Taxation upon Home Ownership and the Uses of Land—Richard
T. Ely
Effect of the Property Tax upon Housing and Home Ownership in Chicago
—Herbert D. Simpson
Effect of Special Assessments upon Housing and Home Ownership—Philip
H. Cornick
DISCUSSION

THURSDAY, DECEMBER 3, 1931

Reconditioning, Remodeling, and Modernizing

Willard Hotel, Small Ballroom, Pa. Ave. & 14th St., N. W.

Committee Chairman—Frederick M. Feiker,
 Director, Bureau of Foreign and Domestic Commerce,
 United States Department of Commerce

- Presentation of General Report—Frederick M. Feiker
 Good Architecture in Relation to Home Improvements—Joseph D. Leland
 Financing Remodeling and Modernizing Work for the Home—George L. Bliss
 Property Values Benefit through Home Improvements—Howard H. Bede
 Reconditioning and Modernizing the Home as It Affects the Family Welfare
 —Miss Emily W. Dinwiddie
 Stimulating Employment during Slack Periods through Reconditioning,
 Remodeling, and Modernizing of Homes—F. Stuart Fitzpatrick
 Community Improvements Fostered by Women's Clubs—Mrs. William F. Lake
 Educating Home Owners to Recognize Desirable Improvements—Miss Grace Morin
 Improving the Farm Home—Mrs. Charles W. Sewell
 DISCUSSION

Relationship of Income and the Home

Washington Hotel, Rose Room, Pa. Ave. & 15th St., N. W.

Committee Chairman—Niles Carpenter,
 Chairman, Department of Sociology, University
 of Buffalo

- Presentation of General Report—Niles Carpenter
 Discussion of the Buffalo Home Ownership Study—Martin A. Brumbaugh
 Discussion of Cost of Living and Income Data—Miss Faith M. Williams
 Discussion of Low-Cost Housing Projects—Miss Blanche Halbert
 DISCUSSION

FRIDAY, DECEMBER 4, 1931

9:30 A. M.-12:00 Noon

Utilities for Houses

Washington Hotel, Hall of Nations
 Pa. Ave. & 15th St., N. W.

Committee Chairman—Morris Knowles,
 President, Morris Knowles, Inc.,
 Former President, Engineers Society Western
 Pennsylvania

- Presentation of General Report—Harold S. Buttenheim
 DISCUSSION

FRIDAY, DECEMBER 4, 1931

Home Furnishing and Decoration

Willard Hotel, Small Ballroom
Pa. Ave. & 14th St., N. W.

Committee Chairman—Miss Ruth Lyle Sparks,
President, Decorators' Club

Introduction—Miss Ruth Lyle Sparks
Outline of Report—Miss Lucy D. Taylor
Supplementary Reports—Mrs. Mary Linton Ackerman, Dexter E. Spalding
Discussion Leader—Mrs. Mary Linton Ackerman

Industrial Decentralization and Housing

Washington Hotel, Rose Room
Pa. Ave. & 15th St., N. W.

Committee Chairman—Stuart W. Cramer,
Treasurer and Member of Board of Directors, Textile
Foundation,
Member of Executive Committee, Cotton Textile
Institute

Presentation of General Report—Stuart W. Cramer
Social Aspects of Industrial Decentralization and Housing—Frederick A.
Miller
Plant Location Factors in Respect to Industrial Concentration or Decentrali-
zation—George C. Smith
Statistics on Plant Location—Tracy E. Thompson
Population Trends Toward Concentration or Decentralization—Warren S.
Thompson
Industrial Housing—John Nolen
The Railroad Rate-Structure and Other Influences in Decentralization—
William Boyd Hunter
DISCUSSION

Landscape Planning and Planting

Willard Hotel, Willard Room
Pa. Ave. & 14th St., N. W.

Committee Chairman—Mrs. Junius S. Morgan

Home Grounds and Gardens—J. Horace McFarland
Open Spaces in Residential Neighborhoods—Jens Jensen
Highways, Urban and Rural—Furman Lloyd Mulford
Legislation—Bremer Whidden Pond
Education and Service—Miss Julia D. Connor
DISCUSSION

FRIDAY, DECEMBER 4, 1931

Finance

Auditorium
400 14th St., N. W.

Committee Chairman—Frederick H. Ecker,
President, Metropolitan Life Insurance Company

The Community and Home Financing—Alexander M. Bing
Legal Aspects—Harry A. Kahler
Mortgage Structure—William H. Kingsley
Statistics—Hiram S. Cody
DISCUSSION

Farm and Village Housing

Chamber of Commerce of the United States, Room N
1615 H St., N. W.

Committee Chairman—Albert Russell Mann,
Provost, Cornell University

Presentation of General Report—Albert Russell Mann
Guidance and Education—John D. Willard
Farm and Village Housing in the United States—E. L. Kirkpatrick
Design and Construction for Farm and Village Houses:
 A Study of Desirable Standards for the Farmhouse—Miss Mary A.
 Rokahr
 Planning the Farmhouse—William Arthur Foster
 Design and Construction Problems in Rural Housing and How They
 Should Be Met—Samuel H. McCrory
Financing of Farm and Village Home Building and Home Improvement—
 Edward H. Thomson
DISCUSSION

2:00 P. M.-4:30 P. M.

Farm and Village Housing

Chamber of Commerce of the United States, Room N
1615 H St., N. W.

Committee Chairman—Albert Russell Mann,
Provost, Cornell University

Farm and Village Housing and Sanitation—Joseph W. Mountin, M. D.
Farmstead Planning and Beautification—Furman Lloyd Mulford
Housing of Special Groups—Mrs. Clara Mortenson Beyer
Methods of Meeting the Problems of Farm and Village Housing—Bruce
 L. Melvin
DISCUSSION

FRIDAY, DECEMBER 4, 1931

Business and Housing

Chamber of Commerce of the United States, Room I
1615 H St., N. W.

Committee Chairman—Harry A. Wheeler,
Former President, Chamber of Commerce of the U. S.

Presentation of the General Report—Harry A. Wheeler
Suggested Procedure to Improve Living Conditions—Samuel P. Wetherill,
Jr.

Interest of Industrialists in Housing—Walter J. Kohler
Knowledge of Facts Needed for Successful House Projects—M. W.
Acheson, Jr.

Economic Aspects of Housing Projects—Richard T. Ely

Brief Review of Appendix to Report—Richard T. Ely

DISCUSSION

Homemaking—Housing and Family Life

Washington Hotel, Hall of Nations
Pa. Ave. & 15th St., N. W.

Committee Chairman—Miss Martha Van Rensselaer,
Director, New York State College of Home Economics,
Cornell University

Presentation of General Report—Miss Martha Van Rensselaer
City Housing and Family Life—Mrs. Sidonie M. Gruenberg
Suggestions for Research in the Relation of Housing and Modern Living
Conditions to Family Life—Floyd H. Allport

DISCUSSION

Home Ownership and Leasing

Auditorium
400 14th St., N. W.

Committee Chairman—Ernest T. Trigg,
Chairman, Educational Bureau, American Paint and
Varnish Manufacturers' Association

Presentation of General Report—Ernest T. Trigg
Hazards of Safeguards in Home Buying—Malcolm C. Rorty
Problems in Renting and Leasing—Ernest M. Fisher
Civic Organizations and the Taxation Problem—F. Stuart Fitzpatrick
The Value of Home Owning—Charles Warner
The Problem of Home Financing—Saul Cohn, Ernest A. Hale

DISCUSSION

FRIDAY, DECEMBER 4, 1931

Home Information Services and Centers

Willard Hotel, Willard Room, Pa. Ave. & 14th St., N. W.

Committee Chairman—Miss Pearl Chase,
Chairman, Plans and Planting Branch, Community Arts
Association, Santa Barbara, California

Home Information Services:

On Home Building and Home Ownership in Urban Communities—William Stanley Parker

On Homemaking in Urban Communities—Mrs. Ida S. Harrington, Miss Georgie Watkins

In Rural Areas—Clarence B. Smith

Of Libraries, Museums, Schools, Colleges, and Universities, and Methods of Public Information—Miss Julia Wright Merrill, Miss Helen W. Atwater

Home Information Centers and Organizations for the Improvement of Service—Miss Pearl Chase

DISCUSSION

Standards and Objectives

Washington Hotel, Rose Room, Pa. Ave. & 15th St., N. W.

Committee Chairman—Lawrence Veiller,
Director and Secretary, National Housing Association

City Planning and Zoning—Subdivision Layout—Utilities for Houses—Landscape Planning and Planting—Industrial Decentralization—Bernard J. Newman, Charles W. Eliot, 2d

Housing and the Community—Blighted Areas and Slums—Farm and Village Housing—Hugh S. Cumming, M. D., Joseph W. Mountin, M. D.

Financing—Home Ownership and Leasing—Relationship of Income and the Home—Taxation—Large-Scale Operations—Franklin T. Miller, Joseph H. Fink

Kitchens and Other Work Centers—Household Management—Home Furnishing and Decoration—Homemaking—Home Information Services—Mrs. Albion Fellows Bacon, Wayne D. Heydecker

Design—Construction—Fundamental Equipment—Reconditioning, Remodeling, and Modernizing—Types of Dwellings—Grosvenor Atterbury, Miss Emily W. Dinwiddie

Summing Up—Lawrence Veiller

5:00 P. M.

Reception—THE WHITE HOUSE

8:30 P. M.

GENERAL SESSION

Constitution Hall, 18th and C Streets, N. W.

Concert—United States Marine Band

Presiding—Honorable Robert P. Lamont

Address—Mrs. Jane Deeter Rippin

Address—Honorable Ray Lyman Wilbur

SATURDAY MORNING, DECEMBER 5, 1931

9:00 A. M.-11:00 A. M.

Technological Developments

Washington Hotel, Hall of Nations, Pa. Ave. & 15th St., N. W.

Committee Chairman—George K. Burgess,
Director, Bureau of Standards, United States Department of Commerce

Presiding—H. L. Whittemore

Brief Summary of the Report—H. L. Whittemore

Electricity in the Home of the Future—Willis R. Whitney

Labor-Saving Tools for the House Construction—Collins P. Bliss

Teaching Students the Fundamentals of Good House Construction—Clarence A. Martin

The Shop-Fabricated House—T. J. Foster

Welding Operations for the Small Home—H. H. Moss

Fire Safety in the Home—C. T. Bissell

Air Conditioning for the Small Home—W. H. Carrier

Technical Developments in the Use of Paint for the Home—Henry A. Gardner

DISCUSSION

LANTERN SLIDES

Legislation and Administration

Willard Hotel, Willard Room, Pa. Ave. & 14th St., N. W.

Committee Chairman—Bernard J. Newman,
Director, Philadelphia Housing Association

Problems of Legislation—Charles Wilson Killam

Discussion opened by Frank Burton

Problems of Administration—John W. Oehmann

Discussion opened by D. Knickerbacker Boyd

Legislative Programs—Harold S. Buttenheim

Discussion opened by Flavel Shurtleff

11:00 A. M.-1:00 P. M.

Education and Service

Willard Hotel, Willard Room, Pa. Ave. & 14th St., N. W.

Committee Chairman—Albert Shaw,
Editor, *American Review of Reviews*

Publications—Miss Martha Van Rensselaer

Schools and Colleges—Public and Private—Julian A. C. Chandler

Other Agencies for Adult Education—R. M. Hughes

Libraries and Museums—Joseph Lewis Wheeler

Special Services—Lee F. Hanmer

Organizations—Mrs. William F. Lake

Correlating—Miss Harlean James

SATURDAY MORNING, DECEMBER 5, 1931

Research

Washington Hotel, Rose Room, Pa. Ave. & 15th St., N. W.

Committee Chairman—James Ford,
Executive Director, Better Homes in America,
Department of Sociology, Harvard University

City Planning and Subdivisions—Harold S. Buttenheim
Reconditioning, Remodeling, and Modernizing—Charles Sumner Duke
Design—Henry Atherton Frost
Household Management—Miss Hildegard Kneeland, Miss Blanche Halbert
Home Information Centers—S. James Herman
Industrial Decentralization—William Boyd Hunter
Negro Housing—Charles S. Johnson
Construction—Charles Wilson Killam
Homemaking and Family Development—Robert S. Lynd
Home Ownership and Leasing—Leifur Magnusson
Kitchens and Other Work Centers—Miss Abby L. Marlatt
Trends in Housing—Roderick Duncan McKenzie
Housing Survey Technique—Bernard J. Newman
Farm and Village Housing—Harry J. Patterson
Business and Housing, and Blighted Areas—Alfred K. Stern
Finance and Taxation—James S. Taylor
Fundamental Equipment—H. L. Whittemore
Legislation—Mrs. Edith Elmer Wood

Brief articles on some of the papers in this program have been printed in the *United States Daily* as follows:

"Program for Modern Housing Is Developed," John M. Gries, July 26;
"Relation of Good Housing to City Planning," Dan H. Wheeler, July 28;
"Transportation as a Factor in Good Housing," Dan H. Wheeler, July 29;
"Taxation as Large Obstacle to Home Ownership," James S. Taylor, August 3;
"Tax Load as Discouragement of Property Ownership," James S. Taylor, August 4;
"Effect of Public Improvements on Home Building," James S. Taylor, August 8;
"Lightening Burden on Home Owners," James S. Taylor, August 9;
"Inequality of Property Taxes as Burden on Homes," James S. Taylor, August 17;
"Encouraging Home Ownership by Easing Tax Burden," James S. Taylor, August 18;
"Effects of Housing Conditions on Business Welfare," Arthur J. Mertzke, August 19;
"Making Over Old Dwellings as Modern Habitations," Arthur J. Mertzke, August 20;
"Decentralization of Industry as Housing Reform," John C. Leukhardt, September 3;
"Profitable Leisure as Factor in Home Ownership," John C. Leukhardt, September 6;
"Remedies for Faults in System of Home Financing," James S. Taylor, September 7;
"High Cost of Home Building as Obstacle to Ownership," Vincent B. Phelan, September 13;
"Fabricated House as Economy in Home Building," Vincent B. Phelan, September 15;
"Building Best Quality of Home for Money Invested," Vincent B. Phelan, September 16;
"Saving through Competence in Building Industry," Vincent B. Phelan, September 19;
"Lightening Household Tasks by Services from Without," Laura Cowley Brossard, November 8;
"Upkeep of the Home To Maintain Property Value," C. O. Christenson, November 15;
"Value of Technical Counsel for Improving Home," C. O. Christenson, November 16.—The Editors.

APPENDIX II

PERSONNEL—THE PRESIDENT'S CONFERENCE ON HOME BUILDING AND HOME OWNERSHIP

Executive Committee of the Planning Committee

- ROBERT P. LAMONT, Secretary of Commerce, Washington D. C.,
Chairman.
- RAY LYMAN WILBUR, Secretary of the Interior, Washington,
D. C., *Chairman.*
- JOHN M. GRIES, *Executive Secretary*, Washington, D. C.
- WILLIAM F. CHEW, Baltimore, Maryland.
- FREDERIC A. DELANO, Washington, D. C.
- JAMES FORD, Washington, D. C.
- MRS. LILLIAN M. GILBRETH, Montclair, New Jersey.
- WILLIAM GREEN, Washington, D. C.
- ANTON EDWARD HORST, Philadelphia, Pennsylvania.
- MRS. JOHN F. SIPPEL, Baltimore, Maryland.
- MISS LOUISE STANLEY, Washington, D. C.
- FRENCH STROTHER, Garden City, New York.

Central Office

- JOHN M. GRIES, *Executive Secretary*, Washington, D. C.
- JAMES FORD, *In Charge of Committees and Publications*, Wash-
ington, D. C.
- JOHN R. ELLINGSTON, *In Charge of Public Information*, Wash-
ington, D. C.
- GEORGE BARR BAKER, *General Consultant*, New York, New York.
- EDWARD R. LISTON, *Office Manager*, Washington, D. C.

In Charge of Program:

- Mrs. Inez G. Richardson.....Washington, D. C.
- Miss Julia D. Connor.....Washington, D. C.

Assistants to the Executive Secretary:

- Mrs. Helen N. Perry.....Washington, D. C.
- Miss Theodora C. Bailey.....Washington, D. C.

For administration purposes, the fact-finding committees of the Conference were numbered from 1 to 25 and the correlating committees were designated A to F, and will be found in that sequence following this alphabetical listing. (See page 322.) In the following alphabetical list, the figures and letters in the center column designate the committees with which or the capacity in which the individual served. *Pl.* refers to the Planning Committee; *Ex.* to the Executive Committee; *C.O.* to Central Office. The number or letter designation of the committee with which an individual served as chairman, secretary, etc., is italicized. The number of the volume of this series in which the report of a particular committee may be found appears in the right hand column of the list on page 322.

Alphabetical Listing

Abbott, Edith	23	Chicago, Ill.
Acheson, M. W., Jr.	6	Pittsburgh, Pa.
Ackerman, Frederick L.	11	New York, N. Y.
Ackerman, Mrs. Mary Linton	16	New York, N. Y.
Adams, Morgan	13	Los Angeles, Calif.
Adams, Thomas	12	New York, N. Y.
Adams, Thomas S., <i>Chairman</i>	14	New Haven, Conn.
Adamson, Robert	8	New York, N. Y.
Affleck, Benjamin F.	15	Chicago, Ill.
Alderman, Lewis R.	22	Washington, D. C.
Alexander, Will W.	D	Atlanta, Ga.
Allard, Mrs. Harriet Wright	D	Topeka, Kans.
Allport, Floyd H.	23	Syracuse, N. Y.
Armstrong, Charles R.	11	New Orleans, La.
Arthur, George R.	21	Chicago, Ill.
Atterbury, Grosvenor	A	New York, N. Y.
Atwater, Helen W., <i>Vice Chairman</i>	16,22,D,E	Washington, D. C.
Avery, Mrs. Ora Hart*	22	Richmond, Va.
Babcock, Frederick M.	15	Ann Arbor, Mich.
Babcock, Mabel Keyes*	17	Boston, Mass.
Bacon, Mrs. Albion Fellows	A	Evansville, Ind.
Bailey, Theodora C.	C.O.	Washington, D. C.
Baker, C. Ernest	1	Baltimore, Md.
Baker, George Barr	C.O.	New York, N. Y.
Baker, Newman F.	8	Chicago, Ill.
Baker, W. Elwood	E	Washington, D. C.
Baldwin, Charles E.	7	Washington, D. C.

*Deceased.

Bales, Alba	3	Fargo, N. Dak.
Ballinger, Homer W.	10	Springfield, Ohio
Bane, Lita	16	Philadelphia, Pa.
Barnes, Julius H.	6	New York, N. Y.
Barrett, Charles S.	20	Washington, D. C.
Bartholomew, Harland, <i>Chairman</i> Pl.,5,12,E		St. Louis, Mo.
Baum, Dwight James	22	New York, N. Y.
Baylor, Adelaide S.	16, D	Washington, D. C.
Beach, Robert B.	7	Chicago, Ill.
Beatty, Thelma,* <i>Secretary</i>	23	Ithaca, N. Y.
Beck, Charles A.	1	Wilmington, Del.
Bede, Howard H.	9	Chicago, Ill.
Benson, Oscar H.	20, E	New York, N. Y.
Bernhard, Joseph	D	New York, N. Y.
Best, William E.	13	Pittsburgh, Pa.
Bettman, Alfred	12	Cincinnati, Ohio
Beyer, Mrs. Clara Mortenson	20	Washington, D. C.
Bidgood, Lee	6	University, Ala.
Bing, Alexander M.	Pl., 13	New York, N. Y.
Bird, Charles Sumner, Jr.	6	Boston, Mass.
Bliss, Collins P., <i>Chairman</i>	2, F	University Heights, N. Y.
Bliss, George L.	9	New York, N. Y.
Blouke, Pierre	11	Chicago, Ill.
Bodfish, H. Morton	1	Chicago, Ill.
Bond, Mrs. Helen Elizabeth Judy-	18	New York, N. Y.
Bonslagel, Connie J.	17	Little Rock, Ark.
Booth, Willis H.	7	New York, N. Y.
Bottomley, Myrl E.	17	Cincinnati, Ohio
Bouton, E. H.	11	Baltimore, Md.
Bowerman, George F.	D	Washington, D. C.
Boyd, D. Knickerbacker	C	Philadelphia, Pa.
Boyd, John Taylor, Jr.	8, 11	New York, N. Y.
Bradford, Mrs. Hugh	Pl.	Sacramento, Calif.
Briggs, Lyman J.	9	Washington, D. C.
Bright, George B.	2	Detroit, Mich.
Brossard, Mrs. Laura Cowley, <i>Secretary</i>	18	Washington, D. C.
Browne, Harold F.	7	New York, N. Y.
Brownlow, Louis	4, 24	Chicago, Ill.
Brumbaugh, Martin A., <i>Vice Chairman</i>	25	Buffalo, N. Y.
Bruner, Herbert B.	D	New York, N. Y.
Brunner, Edmund de S.	B	New York, N. Y.
Burbridge, L. T.	21	New Orleans, La.
Burgess, George K.,* <i>Chairman</i>	2, F	Washington, D. C.
Burroughs, Nannie H., <i>Chairman</i>	21	Washington, D. C.
Burton, Frank	C	Detroit, Mich.

*Deceased.

Burton, John E., <i>Research Secretary</i>	14	Chicago, Ill.
Buttenheim, Harold S.	4, 8, C	New York, N. Y.
Calder, William M.	Pl.	Brooklyn, N. Y.
Cameron, Ralph H.	11	San Antonio, Texas
Campbell, W. W.	10	New Wilmington, Pa.
Capes, William Parr	C	Albany, N. Y.
Carmichael, O. C.	23	Montevallo, Ala.
Carpenter, Niles, <i>Chairman</i>	25	Buffalo, N. Y.
Carr, George W.	24	Chicago, Ill.
Carson, Harry Y.	10	Birmingham, Ala.
Carter, Deane G.	3	Fayetteville, Ark.
Carter, E. F.	2	Raleigh, N. C.
Cellarius, Charles F.	11	Cincinnati, Ohio
Cellarius, Herman F.	1	Cincinnati, Ohio
Chandler, Joseph E.	9	Boston, Mass.
Chandler, Julian A. C., <i>Vice Chairman D</i>		Williamsburg, Va.
Chase, Pearl, <i>Chairman</i>	16, 22	Santa Barbara, Calif.
Chew, William F.	Pl., Ex.	Baltimore, Md.
Christenson, C. O., <i>Secretary</i>	9	Washington, D. C.
Christian, Mrs. Andrew H.	17	Richmond, Va.
Churchill, Jesse B.	2	New York, N. Y.
Clark, Joseph S.	21	Baton Rouge, La.
Clark, William Irving, M. D.	19	Worcester, Mass.
Clay, Wharton	A	Youngstown, Ohio
Clevenger, Frank M.	C	Wilmington, Ohio
Clifford, C. R.	16	New York, N. Y.
Cody, Hiram S.	13	Chicago, Ill.
Coffey, Walter C.	20	St. Paul, Minn.
Cohn, Saul	15	Newark, N. J.
Cole, Mrs. Minnie B.	18	Madison, Wis.
Coleman, Laurence Vail	22	Washington, D. C.
Comey, Arthur C.	B	Cambridge, Mass.
Compton, Wilson	A	Washington, D. C.
Connor, Julia D., <i>Secretary</i>	C.O., 17, D, E	Washington, D. C.
Cooper, Martin R.	20	Washington, D. C.
Cornick, Philip H.	14	New York, N. Y.
Cowles, May L.	3, 20	Madison, Wis.
Craig, Frank A., M: D.	19	Philadelphia, Pa.
Cramer, Stuart W., <i>Chairman</i>	7	Cramerton, N. C.
Crane, Jacob L., Jr.	5	Chicago, Ill.
Crane, William M., Jr.	10	New York, N. Y.
Crittenden, Eugene C.	4	Washington, D. C.
Croxton, Fred C.	E	Washington, D. C.
Culver, Harry H.	5	Culver City, Calif.
Cumming, Hugh S., M.D.	A	Washington, D. C.
Cutmore, Harry S.	14	Chicago, Ill.

Daves, Joseph Herman	25	Knoxville, Tenn.
Davison, Eloise	3, 20	New York, N. Y.
Day, Edmund E.	B	New York, N. Y.
Delano, Frederic A., <i>Chairman</i>	Pl., Ex., 12	Washington, D. C.
Dennison, Henry S.	6	Framingham, Mass.
Dermitt, H. Marie	E	Pittsburgh, Pa.
Derryberry, Inez	17	College Station, Texas
Desmond, Thomas H.	17	Simsbury, Conn.
Dill, Malcolm Howard	17	Dayton, Ohio
Dillon, Clarence	13	New York, N. Y.
Dinwiddie, Emily W.	9, 25, A	Richmond, Va.
Dodds, Harold W.	E	New York, N. Y.
Donlin, John H.	15	Cicero, Ill.
Dorau, Herbert B.	8	New York, N. Y.
Dorsey, Mrs. Jean Muir	18	Urbana, Ill.
Downer, Jay	E	Bronxville, N. Y.
Draper, Earle Sumner	17	Charlotte, N. C.
Drinker, Philip	2	Boston, Mass.
Driscoll, W. H.	2	New York, N. Y.
Duffus, R. L.	D	New York, N. Y.
Duke, Charles Sumner	B	Chicago, Ill.
Dunning, N. Max	10	Chicago, Ill.
Eales, Herbert W.	4	Chicago, Ill.
Ecker, Frederick H., <i>Chairman</i>	Pl., 13	New York, N. Y.
Edwards, Alice L.	19	Washington, D. C.
Eliot, Charles W., 2d	12	Washington, D. C.
Ellingston, John R.	C. O.	Washington, D. C.
Elmer, Manuel C.	8	Pittsburgh, Pa.
Elwood, Philip H., Jr.	E	Ames, Iowa
Ely, Richard T.	6, 14	New York, N. Y.
Embree, Edwin R.	8	Chicago, Ill.
Emerson, William	D	Boston, Mass.
Englund, Eric	14	Washington, D. C.
Eppich, Louis Frederick	5	Denver, Colo.
Fackner, Leonard E.*	13	New York, N. Y.
Fairchild, Fred R.	14	New Haven, Conn.
Feiker, Frederick M., <i>Chairman</i>	Pl., 9	Washington, D. C.
Fink, Joseph H.	A	Brooklyn, N. Y.
Finley, Robert L.	D	New York, N. Y.
Fisher, Ernest M.	15	Ann Arbor, Mich.
Fisher, Katharine	18	New York, N. Y.
Fisher, William E.	11	Denver, Colo.
Fitzpatrick, F. Stuart	6,9,15,22,E	Washington, D. C.

*Deceased

Flint, Herbert L.	17	Orlando, Fla.
Folsom, Josiah C.	20	Washington, D. C.
Ford, Mrs. Henry	Pl., 17	Dearborn, Mich.
Ford, James, <i>Chairman</i> ,	Pl., Ex.,	Washington, D. C.
	C.O.,12,20,	
	B	Cambridge, Mass.
Forstall, Walton	4	Philadelphia, Pa.
Foster, Robert G.	23	Washington, D. C.
Foster, William Arthur	20	Urbana, Ill.
Fox, Leonard P.	6	Harrisburg, Pa.
Frampton, Merle E., <i>Field Assistant</i>	22, 24	Clarksville, Ark.
Frank, Lawrence K.	23	New York, N. Y.
French, H. Findlay	6	Baltimore, Md.
Frey, John P.	7	Washington, D. C.
Frysinger, Grace E.	22	Washington, D. C.
Gaines, Mrs. Irene M.	21	Chicago, Ill.
Gard, Homer	6	Hamilton, Ohio
Garfield, Abram, <i>Chairman</i>	8	Cleveland, Ohio
Gates, Robert M., <i>Secretary</i>	4	Washington, D. C.
Gehlke, Charles Elmer	19	Cleveland, Ohio
Gerwig, George W.	D	Pittsburgh, Pa.
Gilbertson, Henry W.	22	Washington, D. C.
Gilbreth, Mrs. Lillian M.	Pl.,Ex.,7	Montclair, N. J.
Gilchrist, Edmund B.	11	Philadelphia, Pa.
Ginberg, Harris	1	Cincinnati, Ohio
Glenn, John M.	8	New York, N. Y.
Gloyd, Galen V. R.	11	Kansas City, Mo.
Glueck, Sheldon	19	Cambridge, Mass.
Goble, William J.	10	White Plains, N. Y.
Goldstein, Harriet	16	St. Paul, Minn.
Gordon, Mrs. Lena Trent	21	Philadelphia, Pa.
Gould, Carl F.	11, E	Seattle, Wash.
Gow, James Steele	8, B	Pittsburgh, Pa.
Grace, Sergius P.	4	New York, N. Y.
Graham, Albert B.	20, E	Washington, D. C.
Grant, U. S., 3d	E	Washington, D. C.
Gray, R. E.	20	Chicago, Ill.
Gray, Thomas D.	17, 20	Morgantown, W. Va.
Greeley, William Roger	24	Boston, Mass.
Greely, Rose	17, A	Washington, D. C.
Green, William	Pl., Ex.	Washington, D. C.
Greene, Lorenzo J.	21	Washington, D. C.
Greensfelder, Albert P., <i>Chairman</i>	10	St. Louis, Mo.
Gries, John M., <i>Executive Secretary</i>	Pl., Ex.,	
	C. O.	Washington, D. C.
Griggs, Everett G.	6	Tacoma, Wash.

Groeniger, William C.	4	Columbus, Ohio
Gruenberg, Benjamin C.	23	New York, N. Y.
Gruenberg, Mrs. Sidonie M.	23	New York, N. Y.
Gyger, John T.	D	Falmouth, Maine
Halbert, Blanche, <i>Secretary</i>	3,16,20,22, 25, B	Washington, D. C.
Hale, Ernest A.	15	Boston, Mass.
Hale, W. J.	21	Nashville, Tenn.
Hall, Marion, <i>Secretary</i>	17, 22	Washington, D. C.
Hamilton, Willard I.	24	Newark, N. J.
Hancock, Gordon B.	21	Richmond, Va.
Hanmer, Lee F.	D	New York, N. Y.
Hansen, A. E.	2	New York, N. Y.
Hansen, Joanne M.	16, 20	Ames, Iowa
Hare, S. Herbert	17	Kansas City, Mo.
Harper, Bessie	D	Aiken, S. C.
Harrington, Mrs. Ida S.	22	Providence, R. I.
Harris, Agnes Ellen	D	University, Ala.
Harris, Leon R.	21	Moline, Ill.
Hart, Joseph K.	D	Nashville, Tenn.
Heiner, Mrs. Mary Koll	3	Chicago, Ill.
Herman, S. James	B	Detroit, Mich.
Herndon, Mrs. John N.	6	Greenville, S. C.
Herter, Christian A.	D	Boston, Mass.
Heydecker, Wayne D.	A	New York, N. Y.
Hill, Frank F.	20	Ithaca, N. Y.
Hill, T. Arnold	21	New York, N. Y.
Hiscox, Joseph W.	22	Washington, D. C.
Hoener, P. John	11	St. Louis, Mo.
Hoffman, Bernhard	11	Santa Barbara, Calif.
Hogan, Robert H.	21	Lexington, Ky.
Holcombe, Arthur N.	C	Cambridge, Mass.
Holden, Arthur C.	1, 10	New York, N. Y.
Holden, Thomas S.	1	New York, N. Y.
Holman, H. P.	9	Washington, D. C.
Holt, Thaddeus G.	6	Birmingham, Ala.
Hoopingarner, Dwight L.	8	New York, N. Y.
Hopkins, Albert H.	11	Buffalo, N. Y.
Hopkins, Edward W.	14	Los Angeles, Calif.
Horst, Anton Edward	Pl., Ex.	Philadelphia, Pa.
Horton, Mildred	17	College Station, Texas
Horwood, Murray P.	19	Cambridge, Mass.
Hostetter, Harry B.	17	Lancaster, Pa.
Howe, Mrs. Paul E.	2	Washington, D. C.
Howes, Mrs. Ethel Puffer	18	Northampton, Mass.
Hubbard, Henry V.	5	Cambridge, Mass.
Hubbard, Mrs. Theodora Kimball	B	Cambridge, Mass.
Hubert, Benjamin F.	21	Industrial College, Ga.

Hubert, Zachary T.	21	Langston, Okla.
Huddilston, Mrs. John H.	6	Orono, Maine
Hughes, R. M.	D	Ames, Iowa
Hunter, William Boyd	7, B	Washington, D. C.
Ihlder, John, <i>Chairman</i>	1,8,12,A	Pittsburgh, Pa. Boston, Mass.
Ives, James E.	19	Washington, D. C.
Jacobs, Nathan B.	4	Pittsburgh, Pa.
James, C. Clinton	10	Washington, D. C.
James, Harlean, <i>Chairman and Secretary</i>	12,15,17, D,E	Washington, D. C.
Jemison, Robert, Jr.	12	Birmingham, Ala.
Jensen, Jens	17	Ravinia, Ill.
Johnson, B. Eleanor, <i>Research Assistant</i>	18, B	Washington, D. C.
Johnson, Bernard L.	9	Chicago, Ill.
Johnson, Charles S., <i>Research Secretary</i>	21, B	Nashville, Tenn.
Johnston, William A.	13	Akron, Ohio
Jones, Herbert V.	5	Kansas City, Mo.
Jones, Robert T.	2, 20, 22	Minneapolis, Minn.
Justin, Margaret	3, 23	Manhattan, Kans.
Kahler, Harry A.	13	New York, N. Y.
Kelley, H. Roy	22	Los Angeles, Calif.
Kellogg, Mrs. Frederic R.	17	Morristown, N. J.
Kern, Mrs. William F.	D	Columbus, Ohio
Kettering, Charles F.	F	Dayton, Ohio
Killam, Charles Wilson	C	Cambridge, Mass.
Kimball, Dexter S.	F	Ithaca, N. Y.
King, Mrs. Francis	17	South Hartford, N. Y.
Kingsley, William H.	13	Philadelphia, Pa.
Kirby, John H.	15	Houston, Texas
Kirkpatrick, E. L.	20	Madison, Wis.
Kissell, Harry S.	5, 13	Springfield, Ohio
Kneeland, Hildegarde	11	Washington, D. C.
Knowles, Morris,* <i>Chairman</i>	4, F	Pittsburgh, Pa.
Kohler, Marie C.	E	Kohler, Wis.
Kohler, Walter J.	6	Kohler, Wis.
Kolb, J. H.	B	Madison, Wis.
Krusen, Wilmer	C	Philadelphia, Pa.
Kyrk, Hazel	18	Chicago, Ill.
Lake, Mrs. William F.	Pl.,9,D,E	Hot Springs, Ark.
Lambie, Morris B.	C	Minneapolis, Minn.
Lampkin, Mrs. Daisy E.	21	Pittsburgh, Pa.
Lamont, Robert P., CHAIRMAN†	Pl., Ex.	Washington, D. C.

* Deceased.

† Joint Chairman of the Conference.

Lane, Gertrude	Pl.	New York, N. Y.
Leake, James P., M.D., <i>Secretary</i>	19	Washington, D. C.
Lee, Blanche L.	18	Bozeman, Mont.
Lehmann, E. W.	20	Urbana, Ill.
Leland, Joseph D.	9	Boston, Mass.
Leland, Simeon E.	14	Chicago, Ill.
Lenroot, Katharine	D	Washington, D. C.
Leukhardt, John C., <i>Secretary</i>	5, 7	Washington, D. C.
Lewis, Charles F.	24	Pittsburgh, Pa.
Lewton, Mrs. Blanche Clark	22	Washington, D. C.
Lieber, Philip	22	Shreveport, La.
Lindsay, George F.	10	St. Paul, Minn.
Liston, Edward R.	C.O.	Washington, D. C.
Liston, Mrs. Katherine F., <i>Secretary</i>	A	Washington, D. C.
Livermore, Arthur C.	1	Wilmerding, Pa.
Lloyd, Morton G.	19	Washington, D. C.
Lloyd, Walter H.	20	Cleveland, Ohio
Lockwood, Mrs. William A.	17	New York, N. Y.
Lohmann, Karl B.	17	Urbana, Ill.
Loucks, William N.	C	Philadelphia, Pa.
Luckiesh, Matthew	2	Cleveland, Ohio
Lutz, Harley L.	14	Princeton, N. J.
Lynd, Robert S.	23, B	New York, N. Y.
MacDougall, Edward A.	12	New York, N. Y.
Madden, James L.	13	New York, N. Y.
Magnusson, Leifur	B	Washington, D. C.
Mann, Albert Russell, <i>Chairman</i>	20	Ithaca, N. Y.
Manning, Warren H.	17, 20	Cambridge, Mass.
Marlatt, Abby L., <i>Chairman</i>	3, B, F	Madison, Wis.
Marquette, Bleeker	8, 22	Cincinnati, Ohio
Mason, Mary A.	3	Lincoln, Nebr.
Matthews, Mary L.	D	Lafayette, Ind.
Maycock, Mrs. Rena B.	20	Logan, Utah
Mayo, Elton	19	Boston, Mass.
McConnell, Beatrice	20	Harrisburg, Pa.
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